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Teething Troubles of St. Pancras Diesel Services

INTRODUCTION of a train service with a form of motive power differing from that formerly used is almost bound to be accompanied by teething troubles. British Railways, London Midland Region, on January 11 placed in regular service, on a considerably accelerated and augmented timetable, four-car multiple-unit diesel trains over the former Midland Railway main line between St. Pancras, St. Albans, Luton, and Bedford. The train sets, built at the Derby Works of the London Midland Region, and including Rolls-Royce engines and Rolls-Royce/Twin Disc torque-converter transmission sets, were described in our October 9, 1959, issue. There have been, as was inevitable in a changeover on so large a scale, mechanical breakdowns and unpunctuality. These have been given prominence in the newspapers and have aroused criticism from an impatient travelling public. Mr. David Blee,

General Manager of the Region, last week reviewed with the principal officers concerned the causes of the trouble and the steps being taken to put it right, and the likely date when the service will be operating with regularity. The new service requires at peak periods 104 four-car sets. For maintenance and other service requirements, an additional four sets have been provided. If mechanical failure or other cause results in more than four such sets being out of service, delays occur. Mechanical troubles have occurred to a rather greater extent than was expected, so that the complement of vehicles necessary to operate the service has not been available. In the intensive peak-hour periods some failures have occurred at places and times which resulted in their delaying not only the train concerned but also those closely following it. The mechanical troubles have affected many different items of equipment. They have been of a kind which could not have been foreseen, though mostly minor in character. Railway and contractors' staffs are working by day and night and over weekends to correct faults and remove causes. Operating difficulties have arisen through the need at short notice to adjust set workings with trains running out of course. Trains have had to be cancelled and additional stops inserted, and trains stopped short of destination to afford a quick turnaround. This has reacted unfavourably on the service as a whole, even although additional diesel units have been brought in to replace those taken out of service, and in some cases steam trains have been introduced temporarily. Train operation is the subject of close daily check and first-hand observation by senior officers. These measures already are proving effective. By the beginning of March it is expected that the new trains, which afford a greatly improved service in an extensive suburban area, will be working well.

Mr. G. L. Darbyshire

THE late Mr. George L. Darbyshire, whose obituary appears elsewhere in this issue, at the time of his retirement, had completed more than 51 years of service with the London Midland Region of British Railways, and its predecessors. Over 30 of these years were spent at Euston. A traffic man by training, he began his career with the former London & North Western Railway in 1898. During the 1939-45 war, railway staffs seriously depleted by national service, handled exceptionally heavy traffic and, at that time, Mr. Darbyshire's duties, as Chief Labour & Establishment Officer, L.M.S.R., were made more arduous by the additional responsibilities of the Chairmanship of the Railway Staff Conference and the Staff Committee of the R.E.C. With nationalisation impending, in 1947, the late Sir William Wood, President of the L.M.S.R., was made a member of the British Transport Commission, and Mr. Darbyshire was selected to succeed him as Acting President of the company. On nationalisation, in 1948, he became the first Chief Regional Officer of the London Midland Region. He was thus responsible for the activities of the largest railway undertaking in Britain at the time of its transfer to public ownership.

Mr. P. C. Mukerjee

THE late Mr. P. C. Mukerjee, whose obituary appears elsewhere in this issue, was one of the most versatile Indian railway engineers of his time. He had a wide knowledge of many branches of engineering and a broad outlook which stood him in good stead when rising to the highest position of the Indian Railway organisation—that of Chairman of the Indian Railway Board. After receiving his M.A. degree at Cambridge, he joined the Indian Railways in 1925. Although he trained as a civil engineer, the versatility of his talent enabled him to become the first General Manager of the largest locomotive works in India—that at Chittaranjan, a project which was built with British technical aid, and with which he was connected from its inception. Mr. Mukerjee's reputation was not confined to India. He was well known and well liked in Britain, on the Continent and in the United States. His name had been approved by the Council of the Institution of Locomotive Engineers in London as "a man of suitable status" for election as a full member of that institution, although he was not a trained locomotive engineer. His name was never entered on the register, as notice of his death was received just as his election formalities were being completed.

Self-sufficiency for Pakistan

LIKE the Republic of India, Pakistan is taking active steps to achieve self-sufficiency in railway material; to save expenditure of foreign exchange. The Moghalpura Workshops of the North Western Railway, near Lahore, although originally designed primarily for repair work and, to a limited extent, for building timber-body coaching stock, have been used for much special work. Many stores previously imported are now manufactured at Moghalpura. An example is track spares. The shops have been equipped to supply annually 500,000 nuts and bolts, 200,000 dog spikes, 300,000 round spikes, and 30,000 cast-iron sleeper plates a year, all of which were previously imported. Capacity has been developed for turning out 1,000 steel wagons a year. Progress has been made in developing the manufacture of coaching stock. One-hundred and sixty-two bogie vehicles of various types have been under construction and 50 were completed recently. Implementation of plans for building 60 all-steel lightweight coaches a year at Moghalpura is expected to begin shortly.

Keen Interest in Electrification Conference

RESPONSE to invitations to attend the British Transport Commission conference on a.c. electrification in London later this year has been very good and it is quite certain that there will be a strong representation from overseas railways. Delegates to the conference will have ample opportunity to see what British Railways is achieving in a.c. electrification. By the end of the year British Railways will have taken delivery of several a.c. locomotives from various private manufacturers, and although similar in outward appearance they will incorporate individual refinements, particularly in rectifier design. British industry has for some time been in the forefront of rectifier development and this is one of the subjects which will undoubtedly provide interesting material for discussion. The British Transport Commission has been quick to take advantage of the rapid development of semi-conductors. Although trials in this country with a silicon power rectifier began as recently as 1958, the B.T.C. last year ordered 42 motor coach equipments with silicon rectifiers from the English Electric Co. Ltd. The application of semi-conductors overseas has so far been on a modest scale, and a new assessment of their merits will be welcomed by many railways.

More Electrification on South African Railways

WITH Kroonstad brought into the Witwatersrand-Pretoria electrification network, modernisation of South African Railways has been carried another step forward. Mr. B. J. Schoeman, Minister of Transport, speaking at the ceremony to inaugurate the new service on December 3, pointed out that only traffic density could justify the high capital expenditure involved in electrification, but as far as Kroonstad and the Free State were concerned, the expenditure seemed fully justified. To complete the electrification programme which had just been taken into service had cost the Railway Administration more than £4,355,000, and 154 route miles had been added to the electrified mileage of the Union. During the last financial year, he stated, the Railways lost more than £8,000,000. The Administration had set about retrieving the position by making an all-out drive for greater efficiency and by starting economy measures which would cause the least possible dislocation as far as the staff was concerned and which would not have serious adverse effects on the efficiency of the transport services.

Overseas Railway Traffics

RAILWAY operating revenues of the International Railways of Central America for November, 1959, amounted to \$972,852 compared with \$1,147,282 in November, 1958, a decrease of \$174,430. The net revenue from railway operations showed a loss of \$184,407 (\$44,117 profit) and the net income a loss of \$75,433 (\$25,736 loss). Aggregate net revenue from railway operations for the period January 1, to November 30, 1959, showed a loss of \$688,671 (\$14,370 profit) and aggregate net income a loss of \$1,063,160 (\$519,046 loss). Paraguay Central Railway receipts have continued to fluctuate from week to week, but on an average they show

a slight improvement over the previous year. Aggregate receipts at December 25, 1959 were G47,949,810 compared with G47,330,679 in the corresponding period of 1958, an increase of G619,131. Salvador Railway Company receipts for November, 1959 amounted to colones 218,000 compared with colones 210,000 in November, 1958. The aggregate receipts from July 1, 1959, amounted to colones 838,000 compared with colones 934,000 in 1958.

New Look at Stockton

STOCKTON Freight Depot, which handles well over 600 tons of goods a day, has been modernised and enlarged at a total cost, including new mechanical-handling equipment, of £125,000. This outlay is expected to be speedily recouped through reductions in working costs. Under the Region's streamlining plans, all its "smalls" traffic, which used to be handled by almost 1,000 freight depots, is concentrated on fewer than 100 sheds. These will be reduced until all the traffic is concentrated on 29 modern freight terminals, seven of which (including Stockton) are to be "main" centres. The old depot at Stockton had only one handling shed served by three lines with inside accommodation for 39 wagons. Built 85 years ago, it was inadequate for the heavy Tees-side traffic which has developed in recent years. The new depot will handle all freight traffic to and from Stockton, and all "smalls" for Stockton, Middlesbrough, and Tees-side, including the wider area bounded by Eaglescliffe, Yarm, Stokesley, Guisborough, Grangetown, Billingham, and Sedgefield. Daily road services will link all parts of this area with the new terminal, the capacity of which allows for a 30 per cent increase over present goods handling.

Government Fuel Policy

THE announcement last week by the Minister of Power, Mr. Richard Wood, that the Government did not intend to change its policy as to the development of power stations, despite the present large stocks of surplus coal, was to be expected. Plans for electrification of the railways are based on availability from the national grid of increasing electric supplies. These will be generated in power stations which are largely oil-burning, and it is not intended that they shall revert to coal. One reason is that contracts made with the oil companies during a period of acute oil shortage, cannot be broken. Mr. Wood pointed out, however, that coal was a more economic fuel at present, and that he was anxious to increase the consumption of coal by power stations. Plans for building nuclear generating stations are not to be altered on that account. Introduction of diesel motive power on British Railways is to continue. Account has been taken of the reduction in coal conveyed to generating stations, and much of it has been borne for some time by sea and river to riverside installations. The growth of oil consumption may lead to an increase in oil fuel conveyed by rail in tank wagons.

Melbourne Underground Railway Plans

SIR ARTHUR WARNER, Minister of Transport in the Government of Victoria, has spent nearly a month in Britain during which he has studied the railway system, paying particular attention to the London Transport Underground system. Much valuable information has been gleaned about travel habits within the metropolis which, it is hoped, will help in the planning of the underground railway in Melbourne. It is estimated that the railway will cost £25,000,000, and it is proposed that three-fifths of the necessary capital be found by property owners in the central area of Melbourne, where it is estimated that site values will go up by £A50,000,000. A levy will be made over 53 years costing Melbourne ratepayers £A325,000 a year. The plan provides for the underground to leave the existing Victorian Railways line at Spencer Street. It will run beneath Latrobe Street in an easterly direction as far as Spring Street where it will curve southwards to link with the suburban network approximately midway between Flinders Street and Richmond. Construction work will be carried out by local labour, but in some five or six years' time British manufacturers of signalling and rolling stock control equipment will have an opportunity to contribute to the scheme.

Channel Tunnel Prospects

CONSTRUCTION of a Channel Tunnel is reported to be a stronger possibility than it has been for some time. The British Government departments concerned, including the Ministry of Defence, are understood to have expressed their agreement, and the Cabinet is awaiting the report of the study group representing private financial and commercial interests. The French Government also is considering the project. A railway tunnel only is believed to be planned, at a cost of £100,000,000. The principal factor in favour seems to be the growth of goods traffic for conveyance between this country and the Continent without transshipment. No other form of transport, whatever developments may take place in aircraft or hovercraft, can move as much as do railways. In view of the high cost of road vehicle drivers' wages over long distances and of the reduction in costs afforded by "piggy-back" transport of loaded road vehicles on railway wagons in Canada and the U.S.A., much traffic through the tunnel would probably consist of lorries on flat wagons. Passenger traffic, including motorcars on wagons, would be great, and might be maintained at a high level throughout the year because of winter weather affecting air and sea transport.

Re-signalling the Upminster Line

FOR some years after District Railway electric trains reached Barking in 1908, travelling over the widened London Tilbury & Southend Company's line from Campbell Road Junction, Bow, they were controlled by lock-and-block and mechanical signals to which train-stops were coupled. Increasing traffic led eventually to replacement of this equipment by track circuiting, two-aspect colour-light signals, fog repeaters, and electrically operated train-stops, on London Underground principles, with special overlap controls able to be lengthened by the signalmen working the cross-over junctions when steam trains had to be passed along the electrified lines. The further widening to Upminster of 1932 was signalled on slightly different principles. In connection with the extensive alterations being completed at Barking, opening of the new depot at Upminster and separation of the lines in question from those carrying the Eastern Region trains, to be electrified on the 25,000-V. 50-cycle system, new signalling is being brought into service to present L.T.E. standards. This includes separate track and line circuit power feeds and other special features designed to protect against both d.c. and a.c. interference, as described in our article in this issue.

A Century of Service to South Africa

THE hundred years which will have elapsed in June since the first railway was opened in what is today the Union of South Africa have seen the development of the largest transport undertaking in the African continent. A two-mile line between Durban and the Point, authorised in 1859, was built by the Natal Railway Co. Ltd., and opened on June 26, 1860. It was acquired by the Natal Government in 1877, under an Act of 1875. A longer railway in the Cape of Good Hope had been authorised in 1857 and was under construction in 1860. This was the 57-mile Cape Town to Wellington line of the Cape Town, Wellington & Docks Railway Co. Ltd., of which the first section was opened in 1862. It was taken over by the Cape Government in 1873 and became the first Government-owned railway in South Africa, the predecessor of the South African Railways of to-day. The latter term does not embrace the railway system alone. It denotes a vast but closely co-ordinated complex including rail, road, and air services, harbours, and lighthouses and navigational aids along the South African coast, and many other ancillary services, including an efficient railway catering service.

Expansion programmes have always been specifically related to development. Discovery of diamonds at Kimberley was a powerful incentive to railway construction. Exploitation of coalfields in the Transvaal and Natal was made possible only by extending the railway line to these parts. Discovery of gold on the Witwatersrand and, much later, in the Orange Free State, gave a further impetus. The railways have had also to meet the constantly growing needs of industry and agriculture. From the outset railway policy took account of the fact that

an effective transport system was a pre-requisite to the economic welfare of the country. The absence of navigable waterways and the location of mineral wealth deep in the interior have meant that all heavy, long-distance haulage must be undertaken by the railways. Construction of new, and improvements to existing, lines and operation of trains have been complicated by the barrenness of the plains and the steepness of the mountain ranges barring the way to the hinterland.

Today, as the biggest single employer in the country and with capital assets of £673,000,000, the S.A.R. occupies a key position in the economic life of the country. The railways carried nearly 80,000,000 tons of goods during the year ended March 31, 1959, and some 275,000,000 passengers on suburban and long-distance routes. The total establishment of steam, electric and diesel-electric locomotives in service is 3,194, with a combined tractive force of approximately 110,000,000 lb. The notable progress made in all fields of railway activity includes electrification, introduction of diesel traction, signalling and C.T.C., and staff housing. The S.A.R. road transport service, operating over 30,074 route miles, plays a vital role in developing outlying areas and carries an average of 10,000,000 passengers and 2,500,000 tons of goods every year. The ports of the Union, also under the control of the S.A.R., in 1958-59 handled nearly 18,000,000 tons of cargo. Another activity, South African Airways, in the 25 years of its existence has built up a good record of reliability and service on its international, regional, and domestic routes.

The quick growth of the South African economy and of the railways which serve it is shown by the fact that only 70 years ago, in 1890, did the first train leave from the future Johannesburg Station, Park Halt; today the lines on the Witwatersrand form a busily-trafficked complex, much of it electrified, and with many miles equipped with C.T.C. Progress thereafter, before the South African War, made rapid strides. In 1894 the rail link with Portuguese territory was effected on completion of the Pretoria to Delagoa Bay line, and that with Rhodesia on the formal opening in 1897 of the through connection between Capetown and Bulawayo. Shortly after the formation of the Union of South Africa, in 1910, the Government-owned lines of the Cape, Orange River, the Transvaal, and Natal were amalgamated as the South African Railways.

The combined undertaking has continued a policy of expansion and enterprise. The S.A.R. road services were inaugurated in 1912, with a service between Hermanus and Botrivier. The beginnings of electric traction were in 1925, on the section between Glencoe and Mooi River, in Natal, the nucleus of many miles of track-mileage converted at 3,000 V., d.c. In 1934, South African Airways took over commercial services from Union Airways. Five years later the air-conditioned "Blue Train," built in Britain, which is in active service today as a luxury train, and remains an example of railway carriage design and workmanship, began running between Capetown, Johannesburg, and Pretoria. Not the least notable feature of the S.A.R. is the high quality of its motive power, rolling stock, and signalling and other equipment, most of it obtained from Britain. The association with British industry, which enables South African railway management and technical staff to avail themselves of the great store of skill and experience accumulated in this country, continues.

Co-operation in International Railway Transport

THE unity already achieved by the transport undertakings of Britain and the Continent of Europe was stressed by Sir Brian Robertson, Chairman of the British Transport Commission, in a speech to Europe House at the National Liberal Club in London last week. He went on to suggest further measures to ensure co-operation in the field of transport.

The existence of a dozen or so international organisations in the field of railway transport, some of them of Government status, such as the Berne Convention, and some of them concerned only with railway management and operation, such as the International Union of Railways (U.I.C.), is the result of the piecemeal development of the railway system and of cross-Channel and other shipping services connecting with railways, over more than a century. There has been in recent years some attempt to co-ordinate and channel the work of these organisations.

Technical co-operation mentioned by Sir Brian Robertson

includes measures to overcome breaks of gauge. Since the last war, a private Spanish company, Transfesa, has built wagons with interchangeable axles, which are changed at the Franco-Spanish frontier. About 3,000 wagons, conveying some 47,000 tons of Spanish traffic, arrived in this country by Dover/Dunkirk ferry last year and the traffic continues to expand.

The commercial conditions of railway transport have been determined by the Berne Conventions. The Convention relating to merchandise was signed in 1890 and that relating to passengers in 1911, both have been revised from time to time. Although most countries in Europe became parties to these Conventions, the United Kingdom for many years stood aloof, but both Conventions were signed in 1952 on behalf of Great Britain. They have not been implemented by Act of Parliament, so as to give them the force of law in this country, as the Government has accepted an assurance that British Railways would implement them by contract.

Outlining the work of the U.I.C., Sir Brian Robertson observes that its status has been considerably enhanced since the end of the last war. The Organisation for European Economic Co-operation (O.E.E.C.) encouraged the re-shaping of the U.I.C., so that it became generally responsible for co-ordinating and representing the European railways. It directly controls various special bureaux, such as the Central Clearing House for traffic receipts in Brussels and the Office for Research and Experiments in Utrecht. It also co-ordinates the work of specialised organisations established at an earlier stage; for example, the passenger and goods timetable conferences. It has further assisted directly, or indirectly, the development of several outstanding projects, such as the Europ wagon pool; the Interfrigo international company for refrigerated transport; the "Trans-European Express" organisation responsible for the fast diesel train sets linking the principal cities of Western Europe; and Eurofima, the company which finances construction of motive power and railway rolling stock.

The 50 member administrations of the U.I.C. include Eastern Germany, Bulgaria, Czechoslovakia, Poland, and Roumania. U.S.S.R. is not a member although it participates in the international passenger and goods timetable conferences. Although the U.I.C. is primarily a European organisation, the value and importance of its technical work have resulted in the railways of countries outside Europe seeking membership and being admitted; the list includes railways in Asia, Africa and America.

British Railways have been included in the membership since the inception of the U.I.C. This participation is essential on the traffic and technical sides. If, as Sir Brian Robertson states, the Channel Tunnel becomes a reality, with Paris only 4 hr. by rail, perhaps, from London, British Railways will certainly become a part of the railways of Europe. British participation in the work of the U.I.C. has always been welcome, perhaps for the reason that, on some questions, we can take a detached view and assist in hammering out acceptable solutions. Next year, a Member of the British Transport Commission, Mr. John Ratter, will assume the chair of the U.I.C., in succession to Dr. Oefferting, President of the German Federal Railway.

A remarkable feat of co-operation in passenger services has been and is performed by the International Sleeping Car Company in conjunction with many European railway systems. In so far as concerns its widespread activities in the travel agency business, it is in commercial association with Thos. Cook & Son Ltd., which is now owned by the British Transport Commission. The Wagons-Lits Company not only operates its large fleet of sleeping and restaurant cars in many European countries and in through expresses, but has completed an agreement with the German Sleeping & Dining Car Company (D.S.G.) for co-operation and pooling of resources.

Links between Britain and the continental transport systems are provided by the popular fleet of some 50 or so ships owned by the British Transport Commission and the continental railways, or administrations associated with them. The bulk of passenger movement between Great Britain and the Continent is still in the hands of surface transport. In 1958, 4,357,000 passengers were conveyed by surface and 2,975,000 by air transport. The organisation of this traffic requires the closest co-operation between the British and Continental railways, the B.T.C. shipping services, and five other shipping administrations.

The form of link which most closely connects British

Railways and the Continent is the train ferry. The seaboard of Britain, as Sir Brian Robertson points out, is not favourable to the easy operation of train ferries. The sea can be rough; there are some 40 days each year when the conditions in the Straits of Dover are moderate, or worse. Secondly, the tidal range, over 20 ft. at Dover, for example, is much greater than in the Baltic, necessitating elaborate installations to make the level bridge between ship and shore, particularly where passenger coaches are dealt with. Nevertheless, successful train ferry routes are in operation between Dover and Dunkirk and between Harwich and Zeebrugge. The former is the route of the through sleeping-car trains between London, Paris and Brussels, but the goods traffic is of greater importance. About 500,000 tons of cargo is moved in each year by the train ferries, in wagons circulating between stations on the Continent and in Great Britain. When the ferry routes were inaugurated between 1919 and 1939, the preponderance of the traffic was imports, but, latterly, exports have been increasing and a much better balance is being achieved. The great variety of cargo includes machinery and chemicals outwards from the United Kingdom and perishables from the Continent. The customs clearance of much of the traffic is carried out at inland depots, obviating delays at the ports. The Southern Region is constructing a large depot at Hither Green, for the clearance of perishable cargoes passing via the Dunkirk and Dover route. For ferry working, there are about 8,000 wagons generally conforming to continental standards but specially built to the smaller British loading gauge. Their employment and movement is governed by various international arrangements.

Much has to be done before cross-Channel traffic enjoys the conditions that existed before 1914, when customs and immigration formalities were few. This freedom enabled close margins to be timetabled at the ports between ships and trains. Outwards, on some services, it was as close as 5 min.; inwards, 20 min. sufficed. Today, in general, it is about 30 min. for an outwards, and some 40 min. for an inwards passenger service.

Goods traffic is equally important in this respect. There are large groups of transport staff at the ports and inland depots, apart from the customs officers, engaged in the preparation of intricate documents, in producing goods and in paying duties on behalf of importers. Their efforts help to fortify the revenue of this country but, viewed against the background of the development of international trade, the picture is not such a happy one. There is, however, close co-operation between the transport undertakings and H.M. Customs and the Home Office to facilitate speedy transits of passengers and goods, but the Government officers must necessarily act in accordance with our current Acts of Parliament and statutory regulations.

In the last few years, under the stimulus of Benelux, the Common Market and other similar arrangements, a great deal of progress has been made on the Continent in mitigating frontier formalities for passengers. The Rome Treaty, which set up the Common Market, contains several provisions dealing with transport, such as the abolition of discriminatory and protective rates, the reduction of frontier charges and the need to achieve a common transport policy. Under the aegis of the U.I.C., the railways of the six countries concerned have set up an *ad hoc* working party, to ensure a joint railway approach to these matters.

In traffic between the West and those within the Russian sphere of influence, two new large vessels have recently been built for the train ferry route between Trelleborg in Sweden, and Sassnitz in Eastern Germany. There is some goods traffic which passes from Scandinavia to countries in Western Europe by this route.

The removal of restrictions to movement by Governments, as rightly emphasised by Sir Brian Robertson, is one of the most important factors. While much has been done, much remains to do, particularly in regard to road transport. Progress, however, is frequently made through the initiative of transport operators acting freely among themselves to get better co-ordination. The B.T.C. has contributed in several ways. There is the co-operation between the Commission and the air corporation at Gatwick Airport, and the joint arrangements with Silver City Airways for rail-air-rail services between London, Manston and Paris.

Transport operators, railwaymen in particular, have an instinctive affinity. Their national background may differ but when they get together to discuss mutual transport problems these tend to melt away.

The Nigerian Railway in 1958-59

THE report of the Nigerian Railway Corporation for the year ended March 31, 1959, a copy of which has been sent to us by Colonel Sir Ralf Emerson, Chairman of the Corporation, states that the operating revenue of £15,755,000 was a record, exceeding the earning of the previous best year, 1956-57, by almost £1,500,000. Not only was the revenue the best for any single year, but records were also set up in terms of effort and output, as measured by total train-miles, ton-miles and train-miles per engine-hr., tons moved per wagon day, and practically every other statistical measurement. In spite of the apparent statistical and financial improvement on 1957-58, the results would have been substantially better had it not been for the intensification of road transport competition which made itself felt in the latter half of 1958.

Operating costs have continued to rise for many years. It was not possible to check this upward trend appreciably during the year 1958-59, during which working expenses were £800,000 more than in 1957-58, although aggregate departmental estimates in relation to expenditure showed a saving of £118,000. Staff and labour costs increased by 6 per cent and material and fuel costs by 10 per cent, but these increases were partly offset by an improvement of 14 per cent in operating revenue.

The following are some of the principal results for 1958-59 compared with the previous year :

	1957-58 Thousands	1958-59 Thousands
Passenger journeys	7,863	7,015
Tonnage hauled (paying)	2,031	2,353
Passenger train-miles	605	660
Mixed train-miles	1,323	1,249
Goods train-miles	4,896	5,506
Departmental train-miles	163	155
	£ thousands	£ thousands
Passenger parcels & mails receipts	1,944	1,889
Goods and livestock receipts	11,466	13,538
Road transport receipts	112	105
Total working receipts	13,777	15,755
Working expenditure	12,917	13,724
Net working receipts	860	2,031

Expenditure on the capital development programme for existing lines reached its peak in 1958-59 when the total expenditure amounted to £7,800,000. Of this sum £3,700,000 was drawn from a loan made available by the International Bank of Reconstruction & Development. The total of this loan is £10,000,000. Approximately half of the expenditure was incurred on locomotives and rolling stock while the remainder comprised mainly track relaying, signalling, and buildings.

Work was commenced on the Bornu extension. By the end of the year track had been laid and fully ballasted to mile 6½ from Kuru. Some 600,000 cu. yd. of earthworks had been excavated and the forward earthworks team was operating at mile 30. The formation had been completed and trimmed to the designed profile, up to mile 8½. A quarry at Bakin Kogi (mile 16½) was ready for production. Expenditure totalled £887,000 during the year. Total authorisations for future capital expenditure at the end of the year amounted to some £28,700,000, including £18,000,000 for the Bornu extension.

There was an increased demand for transport during the year. To move the record volume of 3,096,000 freight tons together with passenger and parcels traffic, 9,275,598 engine-miles were required compared with 8,676,277 engine-miles to move 2,739,000 tons, plus coaching traffic, in 1957-58. Gross trailing ton-miles (all services) reached 3,298,110,000 and rose from 5,021 per train engine-hour, in the previous year, to 5,296. Freight net ton-miles per train engine-hour (goods) amounted to the improved figure of 2,847, when related to 2,731 obtaining in the previous year.

Emphasis continued to be laid on the improvement of wagon turnround by the elimination of delays at engine-changing and terminal points. The extension of the Zaria-Kano telephone train control to the Zaria-Kaduna Junction section had a beneficial effect on traffic movement to and from both the West and the East, and the opening of four new crossing stations at Diobu, Tsaunin, Kura, Inisa, and mile 334½, added to line capacity.

The stock of wagons was increased during the year by the addition of 221 covered wagons of a standardised 35-ton capacity design and 208 open bogie wagons of various types. In addition to 39 privately owned tank wagons, the Corporation introduced ten of its own of a dual-purpose design, each

capable of carrying over 23 tons of petrol from Apapa to Kano in a main cylindrical tank, and 23 tons of groundnut oil in the reverse direction in two side-pannier tanks. This innovation had the effect of checking the movement of groundnut oil on the road.

Double-wire signalling was installed at 22 wayside stations of which 13 were brought into use before the end of the financial year. A temporary scheme was installed at Enugu South to meet the exigencies of yard working during completion of the remodelling of the yard, and the provision of inter-slotting, with two cabin operation, was taken in hand at Ibadan and Minna. It was decided to progressively replace existing signalling on the Lagos-Ibadan and Port Harcourt-Enugu sections by colour lights.

Changes in the Swiss Fare Structure

EXTENSIVE changes were made recently in the fares structure of the Swiss railways. On the Swiss Federal Railways, which operate a little over half the total railway mileage of the country, the alterations are relatively slight, though entirely in the upward direction. They affect the shortest distances. The minimum fare, covering up to 3 km. (2 miles) is now 40 centimes (8d.) second and 60 centimes (1s.) first class. At 10 km. however, the increase is only from fr. 1.10 to 1.20 second and from fr. 1.50 to 1.60 first class single, and from fr. 1.60 to 1.80 and fr. 2.20 to 2.40 return respectively. By 100 km. the difference is as between fr. 10.50 and 11.20 second and fr. 14.70 and 15.80 first class single, and 50 per cent more for return tickets.

For simplification in charging, a single set of fares is made to cover a zone of distances. The zones increase in length with the total distance. Up to 30 km. there are separate charges for each 2 km. of distance; from 30 to 60 km. for each 3 km.; from 60 to 100 km. for each 4 km.; from 100 to 150 km. for each 5 km.; from 150 to 300 km. for each 10 km.; and from 300 km. upwards for each 20 km. Previously there were individual sets of charges for every km. up to 150 km., after which the zoning began. Baggage rates have been increased in a rather larger proportion. Season tickets show proportionate increases: the all-Switzerland season ticket for a year, for example, is up from fr. 1,050 to fr. 1,130 second class, and there are similar increases for all the other varied types of season ticket available in Switzerland.

The biggest changes have been made on the smaller lines. Here in many cases fares have been reduced, and in some of them to a degree that has been quite revolutionary. Many of the smaller Swiss undertakings, which were very costly to construct, or for various reasons are costly to operate, hitherto have had their fares based, not on the actual distance travelled by the passenger, but on a "tariff" kilometrage, which may be considerably longer, and is duly shown in the timetables. The principle is the same as that in Britain which has applied to journeys over the Forth Bridge or through the Severn Tunnel. At one time fares over certain sections of the Swiss Federal Railways, notably the Gotthard and the Brünig lines, were calculated on the same basis, but in recent years these fares have been reduced fares based on the actual distance. Under a new law, the tariff kilometre charges of the minor lines have been reduced, if not to the basis of the actual kilometrage, to something far more closely approaching it than hitherto. As the reduction in receipts so caused might make it impossible for many of these lines to carry on, the difference between the receipts under the new system of charges and the previous level is to be made good by a Federal Government subsidy. On the Rhaetian Railway the 55½ miles from Chur to St. Moritz has been regarded as 106 miles for fare purposes, now reduced to 77½ miles. Over the Furka-Oberalp Railway the fares have been reduced to two-fifths of what they were formerly.

The result of all these changes is that whereas travellers in the populous and industrialised parts of Switzerland have a moderate increase in their fares, those in the mountain regions can travel a great deal more cheaply. As much tourist travel is among the mountains, the extra that the tourist will now pay on his main line travel should be more than recouped by what he will save in the mountain areas. It is probable also that the deficiency resulting from greatly reduced fares on the minor lines will be recouped, in part at least, by the encouragement they will give to increased travel.

LETTERS TO THE EDITOR

(The Editor is not responsible for opinions of correspondents)

Introduction of Diesel Traction

January 19

SIR,—I am intrigued by Mr. Thorpe's naive approach in his letter in your January 15 issue.

In a very nice way, comparison is made between Line and Region. We could of course break the figures down to suit the situation, but we won't. Indeed, we accept the challenge and I am sure he will have noted that the latest figures show that in the four weeks ended on November 29, the North Eastern Region percentage of passenger mileage worked by diesel traction shot up to 46.22. I should have waited a little longer before asking *The Railway Gazette* to publish the now indifferent figure of 41.8 per cent.

Yours faithfully,

F. L. HICK
Assistant Operating Officer

British Railways, North Eastern Region, York

January 17

SIR,—Would you permit me to point out to the Line Traffic Manager (Great Eastern), British Railways, Eastern Region, whose letter you published in your issue of January 15, that the most pressing need for British Railways at the present time is not, or should not be, elimination of steam traction but the balancing of its accounts, and that the diesel is important only to the extent that it furthers that objective?

Your correspondent, like others in recent weeks, speaks of the considerable increase which diesel railcars have effected in receipts; but all are most careful to quote only gross receipts, a useless figure unless associated with working expenses.

This type of misleading information makes it hard for the casual observer not to debit much of the ever-growing losses of British Railways to its diesel locomotives and not only to its railcars. Today we see, besides the virtual reconstruction of the track, replacement of pre-war steam locomotives costing £5,000—£15,000 by diesels costing as much as £200,000. It is obvious that the traffic cannot carry the capital charges involved.

If this means, as the writer has long suspected, that the railways as we know them are linked with coal and will pass with it, the position might as well be faced before we squander any more millions on propping up the unproppable.

Yours faithfully,

L. IRVINE-BROWN

Tilston, Malpas, Cheshire

Chesapeake & Ohio Railway Calendar

January 18

SIR,—Your issue of May 23, 1958, told how the Chesapeake & Ohio Railway handled its 1957 report in a style of its own. The results in the next two years were not so good, but a few minus signs do not daunt that enterprising railway. Though 1958 was an off year for industry, and 1959 was spoiled by the steel strike, which lasted for 118 days, the C. & O. claims to be the leading coal originator and carrier in the United States. It believes in the future of coal mining and expects America to reach an annual output of 700 million tons in 1970, with a large share of the increased production coming from the area served by its rails.

Meantime in issuing a calendar for 1960 the C. & O. depicts one of its trains running alongside the towpath of a canal which George Washington encouraged the Governor of Virginia to promote in 1785—a sure way to attract attention to a series of views of C. & O. activities!

First comes an illustration of a new \$8.5 million apparatus for discharging ore at Newport News. Next there is a view of a coal loader, erected at Toledo on Lake Erie, and fed by conveyor belts; the appliance is said to be the largest and fastest in the world—able to load vessels at the rate of 6,000 tons an hour. A third picture shows two of the seven train ferries which carry wagons, motorcars, and passengers from Ludington across Lake Michigan to Milwaukee and two other ports

in Wisconsin. As a relief from these views of shipping places, we have a good picture of a C. & O. freight train and a passenger one passing through the New River Gorge in West Virginia, where cliffs tower up to 1,000 ft. above track level.

The C. & O. is a progressive company, though it takes as its symbol a sleepy kitten, which the calendar calls "its famous and lovable Chessie." A wide-awake kitten, which was a new feature in the 1957 report, seems to be a more appropriate badge for a go-ahead railway. At October 31 last year, its earnings, before charges, were more than twice those of the great Pennsylvania Railroad, which serves more steel plants than any other railroad, and was hit hard by the steel strike.

Yours faithfully,

YOUR CORRESPONDENT

London, S.W.1

The Road & Rail Association

January 19

SIR,—It was extremely pleasant to read in your correspondence columns of January 15 that someone had sprung to our defence and had given us credit for attempting, however rashly, to make some contribution to the study of the nation's transport problems.

I would like to make it clear, however, that we do not share Mr. Roberts' view that the Ministry of Transport, the British Transport Commission, and the Institute of Transport all follow slavishly a mistaken doctrine about the nation's transport facilities.

We do believe that there is room for independent analytical thinking on a problem of such vital importance to the nation. We feel, above all, that much can be done by transport users themselves taking thought about the appropriateness of the form of transport they are choosing for the type of freight with which they are concerned. There is obviously some loose thinking somewhere in a situation where the roads are growing ever more congested, while the railways, ideally suited for the carriage of long-distance bulk freight, are still losing customers. This is not a problem which can be tackled by the providers of transport alone.

Yours faithfully,

PATRICK THURSFIELD
Secretary

The Road & Rail Association,
5, Carlos Place, W.1

Dual Couplings

January 21

SIR,—Many thousands of miles are run daily by British Railways vehicles carrying unnecessary equipment in the form of dual couplings. In the Southern Region practically all, and in the Eastern and North Eastern Regions a great deal, of main-line passenger stock is fitted with Pullman buffers and M.C.B. (U.S.A. "Master Car Builders Association") couplers. Why not remove the telescopic buffers and screw couplings from these vehicles and make up complete sets without them, except for the end vehicles? The latter could carry both types, so that vehicles with screw couplings can be attached if necessary.

It would be interesting to know who first applied the name "Buckeye" to the centre couplers. They were known as "Gould" when fitted by the Great Northern, the North Eastern, the Great Central and by the South Eastern Railway in 1898, and subsequently as the M.C.B.

Unfortunately there was violent opposition to their use on the part of all the other railway companies, the result, probably, of that conservatism which caused opposition to upper quadrant signals, flat-bottom rails, and so on. This opposition was in the ascendant for 50 years, and as regards couplers was not swept away until nationalisation.

Yours faithfully,

P. M. BROOKE-HITCHING

2, Kensington Palace Gardens, W.8

THE SCRAP HEAP

Railwayman Raleigh

A railway ganger, Bryce Scott, playing the part of a modern Sir Walter Raleigh, 1,029 ft. up on rainswept Beattock Summit, Lanarkshire, gave his heavy oilskin to Dr. Barbara Moore. His chivalry nearly cost him his pay packet. As she set off on the next stage of her walk from John o' Groats to Land's End he remembered the money was in the oilskin pocket. He went after her and recovered it. From *"The Daily Telegraph."*

Recorded Last Trip

They placed the recording mikes on a boom between the coal tender and the first passenger car on the day when the Atchison, Topeka & Santa Fe Railway ran its last steam loco on the Los Angeles Division. They carefully shielded the mikes from the wind so that every murmur of sound would be faithfully recorded. . . . Out of the station, the cylinder cocks were opened, the whistle sounded for a street crossing, the wheel clicks changed their rhythm over the viaduct, then started on the long climb out of Pasadena. . . . Now it has been issued for all to hear on Vogue VA 160143 "Railroad . . . a farewell to steam." I don't know a 4-8-4 from a 6-6-6, but this had my ears at full stretch from first whistle to last.—*Julian Holland in "The Evening News."*

Steam Power in Action in Museum

The Birmingham City Museum & Art Gallery from time to time runs some of the engines in its collection during what it terms "steam week-ends." The first of these was in March, 1959, and a second at the beginning of this year. Another "steam week-end" is to be held on March 26 and 27. The engines to be run include: (steam driven) Galloway uniflow engine (1924), Easton, Amos & Sons compound beam engine (1864), Massey steam hammer (1873), Tangye Colonial engine (1902), Ruston-Proctor portable engine (1894); (electrically-driven) semi-portable beam engine (maker unknown, about 1820), two-cylinder compound Corliss engine by Pollitt & Wiggell (1909); and a Tangye gas engine (1904). A film of the dismantling of the Ocker Hill engine (1777) will be shown, and it is hoped to show other films dealing with prime movers. The hours of opening are: Mondays to Fridays, 10.30 a.m.—6 p.m. (9 p.m. on the first Wednesday in each month); Saturdays, 10 a.m.—6 p.m.; Sundays, 2—5.30 p.m.

Caution to Station Clerks

In the January issue of *British Railways Magazine*, North Eastern Region edition, are reproduced instructions dated November 9, 1847, by James Allport, Manager of the Newcastle & Berwick Railway (later Sir James Allport, and General Manager of the Midland Railway). They were found recently, pasted on the inside door of a cupboard at Ainderby Station, North Eastern Region. One instruction reads: "Great care

must be taken that no guarantee is made to parties of Trains, Goods, Parcels . . . etc., arriving at any particular time. You may state that they usually arrive at such an hour, but that the Company, although they use every exertion to ensure their rapid and punctual delivery, cannot be responsible for their non-arrival at the time stated." Another states: "Several complaints having recently been received of mistakes in the issue of tickets to passengers, in consequence of which they have had to pay more than the regular fare; it is requested that the greatest care be taken to prevent similar unpleasant mistakes."

Cylindrical Train Ferry

[To ferry trains across the Channel] an ingenious German had the plan to include a railway train, consisting of one steam locomotive, one luggage car, and two passenger cars, in an enormous swimming vertical drum. The train ran on an endless rail and kept the drum turning whilst the outer side was covered with enormous shovels, the whole thing looking like the wheel of a paddle-wheel steamer. You should find the plan of this machine in one of the still yearly appearing youth-book volumes of the *Neue Universum*, 1907 or 1908, which still serve greatly to enliven the fantasy of German boys.—From a letter to *"The Economist."*

Last of Ramsbottom Saddle Tanks

The last of the Class "2" 0-6-0 saddle tank locomotives, No. CD7, is being broken up at Crewe Works, British Railways, London Midland Region. The class was introduced by John Ramsbottom, then Locomotive Superintendent, London & North Western Railway, in 1870, for use mainly in the South Wales district. Whilst 260 locomotives were built, the last in 1880, only 20 were turned

out during Ramsbottom's tenure of office, and the rest during that of Francis W. Webb, the first Chief Mechanical Engineer of the L.N.W.R., when many were fitted with cabs for station shunting duties. The first locomotive of this class to be withdrawn from service was No. 3546 in 1913. No. CD7, completed in 1878, first bore the number 2329, and was subsequently re-numbered four times. The cylinders were 17 in. dia. by 24 in. stroke; coupled wheels 4 ft. 6 in. dia.; boiler pressure 140 lb. per sq. in.; water capacity of saddle tank 600 gal.; and weight in working order 34 tons 10 cwt.

Art Treasures in Luggage Lockers

Eight old masters and 14 icons stolen from Vancouver Art Gallery on January 10 were found 10 days later in public luggage lockers in the Canadian National Railways station there. They were only slightly damaged. A lawyer received the keys to the lockers in an anonymous letter and handed them to the police.—From *"The Times."*

Compulsory Tunnels

In the early days of railways in Britain, some powerful landowners compelled promoters to divert their lines from properties and even to construct tunnels under estates so as to preserve amenities. A correspondent recalls the Redhill Tunnels, south of Trent Junction, on the Midland Counties, later the Midland, Railway. The landlord of Thrumpton Hall insisted on two tunnels. Their entrances were designed by the landowner's architect at the railway company's expense, with towers and medieval ornaments in cut stone. Lord Northland, at Dungannon, Co. Tyrone, objected to trains running through his grounds, and Dungannon Station had to be built at the far end of the tunnel under the demesne, some way from the town centre.



The last of the Class "2" 0-6-0 saddle tank locomotives designed for the L.N.W.R. by John Ramsbottom, and now being broken up

OVERSEAS RAILWAY AFFAIRS

(From our correspondents)

INDIA

Air Timings in Railway Timetable

The Deputy Minister of Railways, Mr. Shah Nawaz Khan, stated recently that the feasibility of incorporating air timings in the railway timetables was under examination in consultation with the Ministry of Transport & Communications.

SOUTH AFRICA

Petrol in Rubber Bags

Petroleum products are now being carried in collapsible rubber bags by the South African Railways. The experiment was started on behalf of one of the major oil companies and the first service introduced on November 23, 1959, was from Kroonstad to Parys, Vrededorp, Bothaville and Wolwehoek.

Four bags each with a capacity of 850 gal. and measuring 7 ft. 6 in. x 11 ft. 6 in. are used, a total of 3,400 gal. per trip in comparison with 2,000 gal., the capacity of a rail/road tanker. Two bags can fit snugly on the deck of a vehicle or trailer.

Electrification to Kroonstad

The formal opening of electric services to Kroonstad took place on December 3, 1959. Mr. B. J. Schoeman, the Minister of Transport, and a number of invited guests travelled by a special train, hauled by one of the new Class "5E1" electric units, from Johannesburg to Kroonstad where the inaugural ceremony took place. Guests on the train represented commerce, agriculture, mining, and industry. The General Manager of the South African Railways, Mr. D. H. C. de

Plessis, the Deputy General Manager, Mr. J. P. Hugo, and other senior railway officers also travelled on the train. All the guests were entertained to lunch by the Mayor and Mayoress of Kroonstad.

Express Goods Service

The express goods service which was first introduced between Johannesburg and Cape Town in May, 1953, has since been extended to Port Elizabeth and East London as well as from the lowveld to Cape Town. It has now been decided to augment it with a service between Johannesburg and Durban.

Between Johannesburg and Cape Town the guaranteed periods of delivery are on the third day or morning of fourth day after acceptance, and to and from the intermediate stations Kimberley and Beaufort West, on the second day. From Port Elizabeth to Bloemfontein delivery is guaranteed on the morning of the second day after acceptance, and between other terminal centres on the third day after acceptance. The delivery periods for the new service to Durban have not yet been decided on as running times of trains will be affected by the improvements to the Natal main line now nearing completion.

The public reacted slowly to the advantages of express services, but with organised industry and commerce helping to make them known, a change for the better has taken place. Comparative figures for the first half (April to September) of the 1959-60 financial year and the corresponding period of 1958-59 show that traffic from the Rand to Port Elizabeth advanced from 820 tons to 1,031 tons, while between Johannesburg and Cape Town the increase was from

1,793 tons to 2,815 tons. The service from the lowveld to Cape Town also improved. In the reverse directions traffic from Cape Town to the Rand totalled 3,286 tons in the first half of 1959-60, and 2,584 tons in 1958-59; from East London the totals were 1,777 and 1,445 tons while from Port Elizabeth traffic showed little variation.

NEW SOUTH WALES

Outlay on New Rolling Stock

The N.S.W. Government has allocated £A.11,100,000 to the Railway Department for the 1959-60 period. More than half this sum will be spent on new locomotives and rolling stock including 21 main-line and 26 branch-line diesel locomotives, nine diesel railcars and 48 electric cars, 32 for the Gosford line and 16 for suburban services, all fitted with safety doors.

CHINA

Bridge Over the Yangtse River

A second bridge over the Yangtse River at Chungking has been completed. This bridge is 2,700 ft. long, on nine spans, and carries a road and double-track railway on two levels as is done on other major Chinese bridges. The completion of the bridge will facilitate the construction of the Chungking-Kweiyang Railway, about 400 miles in length, the construction of which is proceeding as rapidly as the mountainous country will permit.

CANADA

Shelter Bay-Jeannine Railway

Another important iron-ore railway is under construction, this time to connect the deposits in the Lac Jeannine area with Shelter Bay, Quebec. The whole line is 193 miles in length and is expected to be open for traffic by the end of this year. By January 1, 80 miles of track had already been laid. This new mineral line—appearing to resemble the now well-known Labrador ore railway—will carry the concentrated ore down to a deep-water harbour being blasted out of solid rock to the west of Shelter Bay. The ore is being developed by the Quebec Cartier Mining Company.

FRANCE

S.N.C.F. Finances in 1960

The proposed budget of the French Ministry of Transport & Public Works envisages State payments to the S.N.C.F. in 1960 of 1,619 million new francs (approximately £115,000,000). This will include 278 million new francs (some £20,000,000) as compensation for rates held at uneconomic levels on governmental authority, and to cover the ultimate deficit on operating account; 1,060 million new francs (about £76,000,000) for the maintenance of the



Guest train hauled by a Class "5E1" locomotive entering Kroonstad Station with Mr. Schoeman at the controls

permanent way and level crossings, and in respect of pension commitments; and 261 million new francs (£19,000,000) for charges reduced for State welfare purposes, such as family fares and war-wounded personnel. The total projected payment shows a slight increase over that proposed for 1959. In addition, a subsidy payment of 173 million new francs (£12,500,000) is allocated for the Paris Transport Authority (R.A.T.P.).

Silicon Rectifier Locomotive

The BB 30,003 bi-current locomotive of the S.N.C.F., intended for operation on 50- and 16 $\frac{2}{3}$ -cycle a.c. current lines, was originally equipped with excitron equipment. This has now been replaced by silicon rectifiers and the locomotive develops 4,880 h.p. on 50-cycle current, and 3,920 h.p. on 16 $\frac{2}{3}$ a.c. current. The rectifiers are grouped together in a single bridge consisting of 896 cells. Since September this locomotive has been hauling heavy express trains on S.N.C.F. 50-cycle lines. It is, at present, the most powerful motive unit in service with semi-conductor rectifiers.

New Station in Paris Suburbs

Following the development of a new housing estate at Beauregard on the Saint-Cloud to Saint-Nom-la-Brière line in the Parish suburban area, the S.N.C.F. has constructed and opened to traffic a new station, La Chataigneraie, between

Vaucresson and Bougival-La Celle-St. Cloud. Two 525-ft. platforms have been built together with a passenger building with normal facilities.

ROUMANIA

Roumanian-Hungarian Trade Agreement

Under the terms of a trade agreement signed in Bucharest on December 18, Roumania is to supply Hungary in 1960 with goods wagons, machine tools, electric motors, transformers, high-voltage installations, tractors, and building materials. Hungary in return will supply machine tools, machines, machine installations, and telecommunication installations.

WESTERN GERMANY

Ostend-Munich Car Sleeper Express

The German Federal Railways, in conjunction with the Belgian National Railways, is to operate an express car sleeper between Ostend and Munich in connection with the car ferries of the Belgian State Marine plying between Dover and Ostend. The outward services are on Fridays and Tuesdays from June 10 to September 9; the inward services on Saturdays and Wednesdays from June 11 to September 10. Besides the specially equipped covered wagons for the conveyance of the cars, there is

one sleeping car (Wagons-Lits) first and second class, one couchette coach second class, and one restaurant car from Ostend to the German border with snack bar service in the opposite direction.

IRELAND

Development and Research Unit

Approval has been given for a grant of £35,000 towards the cost of the establishment by Coras Iompair Eireann of a development and research unit. The grant will be paid initially from Government funds but will be recouped from the U.S. Grant Counterpart Reserve Fund.

The development and research unit will concentrate on special technical transport problems. Such problems would include questions relating to the use of containers, flats, and pallets which will form the basis of a road-rail co-ordination. It is proposed to study existing models, to design units specially suitable to Irish conditions and to build a sufficient number to obtain a fair test in actual traffic conditions. Economical methods of transferring the units between road and rail without the use of extensive crane power will also be studied.

Other matters coming within the functions of the research unit include the mechanisation of the permanent way, as well as certain aspects of operational research.

Publications Received

Private Railways in Japan.—A 34-page illustrated brochure published by the (Japanese) Private Railways Association, 4, 3-Chome, Marunouchi, Tokyo, outlines the scope and general position of railway undertakings in Japan operated by private companies, local authorities, and so on, and gives a few details of 14 railways out of a total of 177. There are brief notes on the motive power and rolling stock used, and on passenger and goods traffic. The most useful feature of the particulars of the 14 major concerns is the sketch map of each system, showing, in some cases, its position in relation to the National Railways lines. Some of the photographs of rolling stock and of the places served are well reproduced.

Theatregoer's London.—This book by W. Macqueen Pope, and published by London Transport, records the histories of 48 famous London theatres with their legends and traditions, their ups and downs of fortune, and the great managers, actors, and plays which have been associated with them. The book has been published to encourage more people to take advantage of the large amount of live drama which London theatreland offers today, and to use the London Underground for making their journeys. A map shows the position of all the theatres of the West End with their adjacent Underground stations. The book is on sale at London Transport

enquiry offices at 55, Broadway, S.W.1 and Piccadilly Circus Station, and from the Publicity Officer, London Transport, Griffith House, 280, Marylebone Road, N.W.1, price 4s.

Party Outings by Rail.—British Railways, North Eastern Region, has issued an illustrated 40-page booklet indicating the facilities offered for party outings at reduced fares. The suggestions made are not exhaustive but show the kinds of trips which can be arranged. Photographs of places of beauty and interest are well chosen and reproduced. There are lists of places, buildings and so on, to visit, variously classified, also details of tickets at reduced fares and the addresses of passenger traffic officers—with an inquiry card—in the Region.

Zeitschrift für Verkehrswissenschaft (Transport Science Review). Düsseldorf: Verlag Handelsblatt G.m.b.H. No price stated.—This issue contains several transport items. One of particular interest is the report of a congress held at Stuttgart last year to discuss automation as applied to transport, its aims and possibilities. The railway aspect of this problem was dealt with by the Divisional Signal Engineer of the German Federal Railway at Frankfurt, Mr. K. F. Kümmel, with contributions by other engineers from the Bundesbahn, French National, and Swiss Federal Railways. The subjects discussed included the application of automatic devices to signalling, remote control, train describing, the operation

of junctions and marshalling yards, handling of freight, and carrying out of workshop processes.

K.S.K. Products.—A 32-page illustrated brochure issued by Kisha Seizo Kaisha Limited, of 2-Chome Marunouchi Chiyoda-Ku, Tokyo, gives some brief historical and other details of the firm and depicts many of its products. These include steam, diesel, and electric locomotives, railcars, rolling stock of many types; bogies; bridges, traversers, and other steel structures; valves; air-conditioning equipment; and wheel milling machines and lathes. The undertakings to which the products were delivered in most cases are not stated.

Timbres Ferroviaires (Postage Stamps Depicting Railways). Published by La Vie du Rail, 11, Rue de Milan, Paris, 9e. No price stated.—This illustrated 80-page catalogue is of interest to those concerned with the history and operation of railways overseas, apart from philatelists. The text is in French. The various issues from early days are listed under countries in alphabetical order, and classified by subject, e.g., A for locomotives, railcars, and trains as main subject; D for civil engineering works and so on; and F for railway promoters and builders, engineers, and other railwaymen. Many of the stamps are reproduced in black-and-white. The number of recent issues is considerable. The publishers are to issue monthly supplements.

Modernised Freight Depot at Stockton

Old-established depot transformed as one of the main freight centres in the North East



Exterior of new extension to the modernised depot

BBRITISH Railways' freight depot at Stockton-on-Tees has been remodelled, modernised, and equipped throughout with up-to-date mechanical handling appliances.

The industrial development of recent years has brought heavy increases in the rail traffic passing to and from the Teesside area, and facilities at the old depot became quite inadequate with frequent resort to improvisation, often costly and generally unsatisfactory. A completely modernised depot became urgently necessary.

The old shed, now modernised and extended, has been retained and will be used exclusively for incoming traffic. The manual system of handling has been replaced and 10 electric trucks—seven with fixed and three with elevating platforms—have taken over from the old hand barrows. These trucks will be used in conjunction with "stillages," which, when loaded will be conveyed by electric truck to the road delivery vehicles and empty stillages returned to the wagon sides. A one-ton electric mobile crane will move heavier consignments.

Loading Platforms Re-surfaced

The three loading platforms in the old shed have been rebuilt and surfaced in tarmacadam and concrete to provide good surfaces for this mobile mechanical equipment. A fixed deck connects the west side and middle platforms at the terminal end of the shed, while the east side and middle platforms are connected by a counter-balanced lifting bridge, located centrally in the shed. This bridge can be raised for the passage of railway wagons.

For outgoing traffic, a completely new shed has been built on the west side of the old shed. It covers some 60,000 sq. ft., and has three roadways serving

four railway tracks on which 63 wagons can be loaded simultaneously. Road access is given at both ends of the shed. Traffic for despatch is taken by the incoming road vehicles direct to the railway wagons into which it is to be loaded. A fork-lift truck with a crane attachment is available for handling traffic stowed on pallets and also for the heavier lifts.

Reinforced Concrete and Steel

The new shed consists of reinforced concrete columns supporting prestressed concrete roof beams and also steel stanchions with steel beams and cantilevers. Between the columns, the side walls are in brickwork up to six feet from the ground with patent glazing

above. The roof is of concrete construction with 60 per cent of the roof area in patent glazing. This large area of glazing admits good natural lighting to the interior of the shed.

Because the new shed abuts the old, it has been possible to support part of the old roof on the new construction. This in turn has made possible the removal of the old shed wall on the west side which previously restricted the free movement of road vehicles alongside the loading platform.

Improved Staff Quarters

Offices, messrooms, lavatory accommodation, and washing and drying facilities have been extended and modernised. A new heating and hot-water system has been installed and electric lighting up to modern standards has been provided throughout.

Apart from the increased efficiency and economy resulting from mechanised handling, the concentration of traffic to and from a wide area into a main centre provides the conditions in which wagons can be given heavier loads. At the same time, the range of places to which direct wagon-loads can be made is considerably extended. This in turn eliminates a good deal of intermediate transhipment of loads and reduces the time taken in transit.

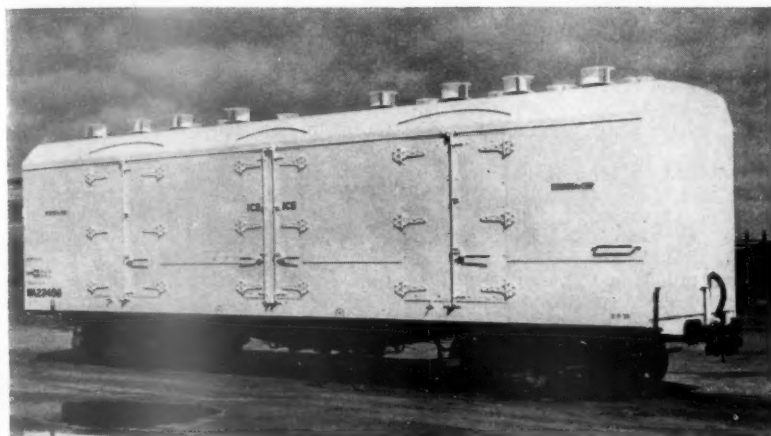
These improvements, coupled with the increasing numbers of "Express" freight trains, made possible through the fitting of the continuous vacuum brake to freight wagons, will facilitate quicker deliveries for freight traffic carried by rail into and out of the industrial and residential areas on both banks of the Tees. Editorial reference to this depot is made on page 122 of this week's issue.



The well-lit interior. Note the good surface provided by the platforms for the mobile mechanical handling equipment

Cold Storage and Refrigerator Transport in Western Australia

*All-steel ice-cooled vans built in W.A.G.R. workshops
and louvre vans converted to mechanical refrigeration*



Class "WA" all-steel ice-cooled van, showing the Flettner rotor air circulators and separate doors to the ice and storage compartments

DURING August, 1958, the first four of an order of eight bogie all-steel ice-cooled vans were placed in service on the Western Australian Government Railways and the remaining four are now in service. The vans, which have a capacity of 31 tons 8 cwt. and a tare weight of 22 ton 12 cwt., were built in the Department's Workshops at Midland Junction.

The van body is designed with two compartments with hinged double doors at the centre of each compartment side. The underframe is of all-welded steel construction, the solebars and certain transverse members of angle iron sections, and the longitudinals, headstocks, and bolster crossbars are fabricated by welding or pressing. The body framing is of angle iron and the steel exterior

body panels are butt-welded to the framing members.

The principal dimensions and particulars are as follow:—

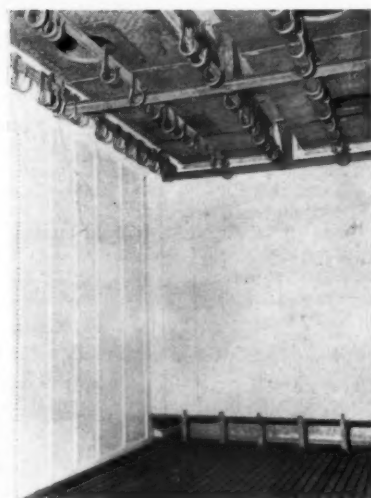
Gauge	...	3 ft. 6 in.
Length over body panels	...	36 ft. 1½ in.
Width over body panels	...	8 ft. 6 in.
Height from rail to top of roof	...	12 ft. 0½ in.
Centres of bogies	...	24 ft.
Bogie wheel base	...	5 ft. 6 in.
Diameter of wheels	...	31½ in.
Width of side door openings	...	5 ft.
Width of ice compartment door openings	...	1 ft. 6 in.
		approx.
Capacity of each compartment (at cant rail height)	...	750 cu. ft.
Tare weight	...	22.4 tons

Insulating Material

The insulation consists of Onozote, 6 in. thick on the ends, sides, side doors, and roof, and of 6 in. thick granulated cork in 2-in. slabs on the floor. The inside faces of the ends, sides, side

doors and roof are lined with ½-in. thick waterproof Western Australian plywood, the surfaces of which are faced with 1½ in. × ½ in. timber battens fitted vertically. The floor consists of ¾-in. thick tongue and grooved Oregon boards laid on timber bearers secured to the underframe. The top of the floor is covered with 4-lb. sheet lead which is continued up the sides and ends to form a joint with the lining to a depth of 3 in. above floor level. All joints are lapped and sealed to prevent moisture entering the insulation. Removable timber gratings in frames, of 1½ in. × ¾ in. slats on 2 in. × 1½ in. bearers, are fitted on the floor.

Cooling is provided by ice carried



Storage compartment of "WA" Class van, showing air ducts in roof

in two separate compartments which extend the full width of the inside of the van and situated back to back in the centre of the van. The ice compartments are independent of each other and have outside opening hinged doors which provide access without having to enter the main compartment. All doors are sealed by spring-loaded continuous length timber slats on the edges of the doors. The slats are glued to saddle cloth and the whole is covered by 16-oz. canvas.

Flettner rotor-air circulators are fitted on the roof of the van, eight per compartment. The rotors produce a continuous circulation of cold air inside the van and keep the goods contained in the van in constant contact with the cooling medium. Two longitudinal air ducts are fitted in the roof of each compartment and the centrifugal circulators are set within these ducts, drawing air from the lower parts of the compartments and forcing it along the ducts across the ice boxes thereby maintaining uniform cooling of the air.

(Continued on page 135)



Class "VDR" combined refrigerator and louvre van

Re-signalling of L.T.E. Bow to Upminster Line

Lines operated by L.T.E. are being isolated from parallel British Railways tracks and signalled, with protection against 50-cycle current interference

DIRECT connection between the London Underground lines and the railways running eastward along the north of the Thames was effected by the opening on June 2, 1902, of the Whitechapel & Bow Railway, owned jointly by the District and London Tilbury & Southend Companies. This ran from Whitechapel, to which District services had begun running in 1884, through Stepney Green, Mile End, and Bow Road, to Campbell Road Junction, on the Tilbury Company's main line from Gas Factory Junction (Fenchurch Street) to Barking and Southend. The trains were originally worked by steam and some travelled as far east as Upminster.

With the progressive quadrupling of the line between Campbell Road Junction and Barking District electric trains began working to East Ham on August 20, 1905, and to Barking on April 1, 1908. The signalling on this widened route was mechanical, to L.T.S.R. standards, controlled by Sykes lock-and-block, and enabled a very good service to be provided.

The signals for the local electric lines had mechanical train-stop trip arms coupled to them. The Midland Railway absorbed the Tilbury system in 1912 and thereafter installed its own pattern of signals, etc., as renewals or alterations became necessary.

Colour-Light Signalling Introduced

The growth of traffic consequent on industrial and housing developments in the area led the L.M.S.R., of which the Midland had become a part at grouping, to consider re-signalling the local lines, and early in 1928 colour-light 2-aspect signals, with fog repeaters and electrically operated train-stops, answering generally to London Underground practice and

controlled by continuous a.c. track circuiting, were brought into service and provided for a close headway. The several crossover connections with the fast lines, on which the signalling remained substantially unchanged, were retained, and to allow steam goods and other services to use the electric lines special instrument controls combined with train describer equipment were provided, by which the signal overlaps could be extended to give the required additional protection to such movements. On the extension of the widening to Upminster in 1932 the L.M.S.R. installed colour-light signalling on the new tracks used by the District trains. This was a three-aspect system with motor-operated train-stops and a second red, or "marker," light on the signals, as seen on that company's electrified lines to Watford.

All these London, Tilbury & Southend lines became a part of the London Midland Region at nationalisation, but were transferred to the Eastern Region in February, 1949.

Effects of A.C. Electrification

Although the signalling above outlined had given excellent service changing traffic conditions and the requirements of the modernisation plan necessitated a complete rearrangement. This plan involved the conversion of the Fenchurch Street—Southend line to the 50-cycle high-voltage a.c. system—with consequent re-signalling of the original fast lines—leaving the local lines operated on London Transport's 600-V. d.c. 3rd and 4th rail system. Crossover junctions between the two sets of lines would thus become practically valueless and this, coupled with the complete re-arrangement of lines being provided at Barking

station, led to the decision to devote the original electrified tracks solely to London Transport's trains and re-signal them to suit; a considerable portion of this work has already been completed in the form now being described.

Re-signalling for L.T.E. Services

The re-signalling at Upminster, with push-button desk in a new signalbox controlling an interlocking machine at each end of the station, with the new rolling stock depot and floodlit yard and shunting control tower, was brought into use about a year ago, as described in our issue for October 2, 1959. At the western end of the route the new signalling is at present in service as far east as Upton Park, pending the completion of the extensive work at Barking. The accompanying diagram shows a portion of this signalling, typical of the work generally.

The various controls and overlaps are arranged to suit a close headway, with long-range 2-aspect (red and green) running signals and electro-pneumatic train-stops, supplemented by repeater and fog repeater signals, as circumstances require. Points in running lines are operated by electro-pneumatic movements, with "chair" type locks, improved by the L.T.E. Signal Department from the form described in our December 31, 1954, issue, while any that can be taken facing by passenger trains have ground electric track-locks in addition. Both tongues are individually locked to the stock rail or in the open position and the 4 ft. way is kept clear, as the operating and locking equipment and detection contacts are all contained in small boxes bolted to the stock rails on each side. Certain points, essential to the day-to-day working, have the L.T.E. standard oil

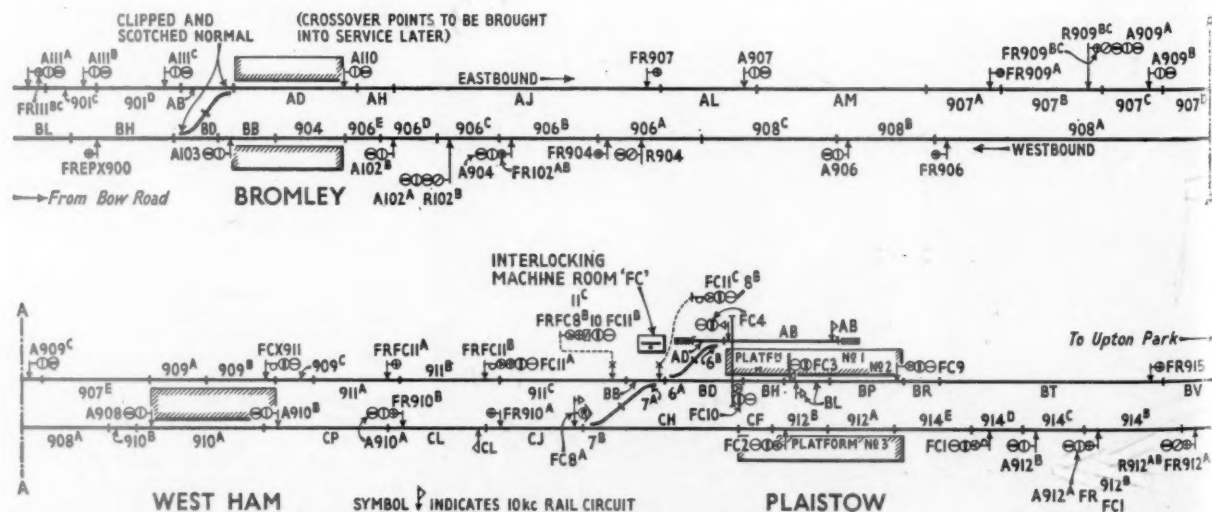


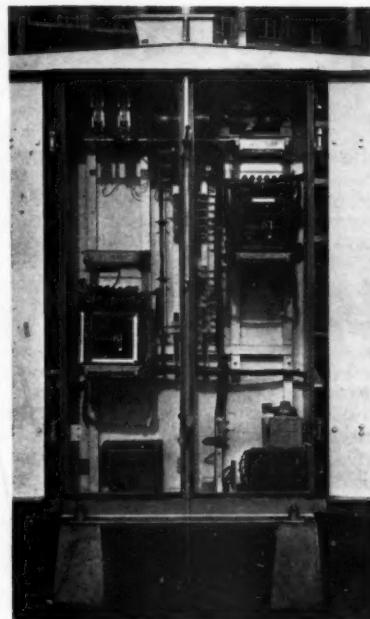
Diagram showing typical portion of re-signalling being carried out between Bow, Barking, and Upminster on tracks reserved for L.T.E. trains

circulation heating equipment to keep them free of snow and ice in winter. Shunt signals are floodlit discs. When the whole scheme is complete the Upminster signalbox will control an interlocking machine at Hornchurch, with emergency crossover, and the one at Barking will similarly control such machines at Bromley, Plaistow, East Ham and Dagenham East. At Plaistow and Dagenham train reversing is arranged for, and for the time being a temporary signalbox is in use at the former place, with a small switch panel to control the local interlocking machine.

The adoption of 50-cycle traction for the main Southend line made it essential to protect the L.T.E. signalling equipment against interference from that system as well as from its own, as usual. The standard 33 1/3-cycle condenser-fed track circuit was immune to d.c. interference but required protecting against infiltration of 50 cycle a.c., while the effect of spurious voltages on cables and the circuits running in them also had to be considered. As this depends, among other things, on the distance between the cables and the influencing current the

cable run has been kept to the north side of the line throughout, at maximum distance from the Eastern Region tracks.

Information gained from tests held on the Styal line of the London Midland Region, and elsewhere, led to the adoption of certain precautionary measures and fitting of protective equipment where necessary. Two completely separated signalling supplies have been provided, produced from generators mechanically coupled to a three-phase induction motor to ensure constant relative phase displacement. One signalling main is fed at 440V., 33 1/3 cycles and serves exclusively to supply the track circuits. The other, at 600V. and the same frequency, feeds all the other circuits and therefore of course the "local" windings of the track relays. All cable conductors are screened, either by a lead sheath, a lead sheath and armouring, or an aluminium screen and armouring. This should reduce any induced voltages in the conductors, but may not be entirely effective, as it is undesirable to earth a sheath owing to the difficulties that can arise under stray d.c. traction fault conditions. Armouring and sheath have



Apparatus case, showing track and signal control relays, and electro-pneumatic train stop control valve



Ordinary stop signal with fog repeater below, relating to signals in advance, mounted on apparatus case, with track feed case alongside

therefore been connected to the main compressed air pipe, continuous throughout the line but not earthed at any specific point. In this way a distributed leak to earth is obtained. Induced voltages are prevented from finding an earth by way of the main L.T. system by a definite electrical break in each cable sheath and in the main air system at a kiosk location at Campbell Road. In every signalling circuit the return follows exactly the same route inside the same sheath or screen so that any voltages induced in line and return must be in opposition and become neutralised.

Track Circuits

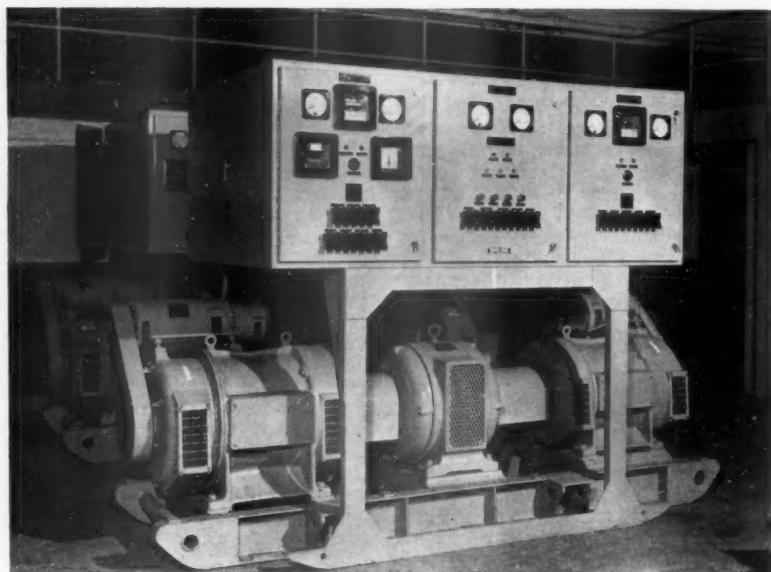
The two-element relays used for the track circuits provide the required frequency sensitivity. To reduce risk of unwished-for influence from any stray 50-cycle current a special "rejector transformer," or filter, tuned to reject such current, is provided. One winding is in series with the "track" winding of the relay and the other is connected to a 4.8 mf. condenser. The effective impedance is 70 ohms at 30V., 50 cycles, and 9 at 5V., 33 1/3 cycles, with the condenser rated at 800V., 50 cycles, for continuous working. As, however, extremely heavy a.c. fault currents might raise the voltage much higher and break down the condenser, rendering the device useless, a special "Metrosil" type resistance is connected across the condenser. Its value falls rapidly as the voltage across it rises, so increasingly damping the "rejector" circuit and reducing the peak voltage; a value of 880V. across the condenser was found to be reduced to 780 by this device. It is, of course, essential to prevent the "local" windings of the track relays from receiving induced 50-cycle current, otherwise false operation might result.

It is for this reason that the two feed mains above mentioned, which have no electrical connection whatever with each other, have been provided.

Other Circuits

To exclude any false operation no single element vane relays are being used on this section of line and all signal relays, including those controlling repeater and fog repeater signals, are of the two element type, with "local" winding energised by the actual circuit and the other from the 600V. main via the nearest signal transformer; this latter winding has a series 290 ohm resistance for creating a suitable phase angle. Line and signal indication relays in relay rooms have their "local" windings operated at 100V. from the incoming control circuit and the second one fed from the signal main busbars—themselves connected to the 600V. main—via a transformer, with a resistance in its primary circuit for phase compensation, connected to the 100V. busbar. The secondary is connected to a 4V. common busbar. The relays used for these functions form a modified design of the previously used standard two-element track relay and have four back contacts, with return balance weight altered to suit. Back contact pressure is $1\frac{1}{2}$ oz. and the contact opening 0.08 instead of 0.1 in. As with all vane type relays a distinctive painting has been adopted for the case, to facilitate storage and ready replacement when necessary.

In this installation the air is compressed initially to 125 lb. per sq. in. and delivered



Interior of sub-station, showing signalling generators for 440-V. and 600-V. 33 $\frac{1}{3}$ -cycle supplies coupled to three-phase induction motor

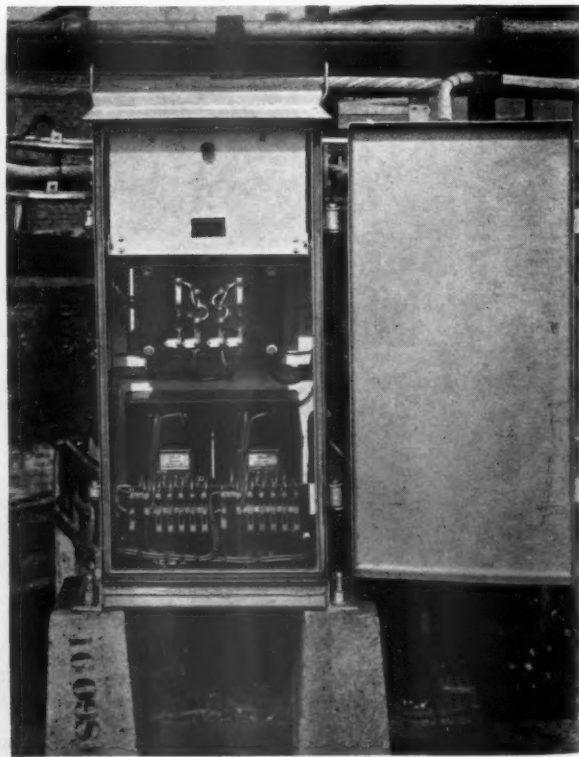
first to an "after" cooler, which cools it to slightly above ambient temperature so that the primary water content becomes condensed out. The coolant is water in a closed circuit, cooled by forced draught. The air then passes to a reservoir and the outdoor cooling grid. Its pressure is then reduced by an expansion valve to the normal figure of

60 to 70 lb. per sq. in. which reduces the dew point below freezing point.

The signalling locations have been divided in conformity with their power supplies. Apparatus cases have been designed specially to house the signalling equipment proper, and the electro-pneumatic valve units, to protect them from weather and other external



Campbell Road isolating kiosk for electrically separating cable sheaths and air main from the rest of L.T.E. system



Track service feed case supplied from the 440-V. mains, showing condensers, terminals, and associated equipment

influences, and also to carry on top a signal, when necessary or convenient, with a second type arranged to contain track circuit feed equipment only. Both can be pre-wired at depot before being conveyed to the site and connected up locally.

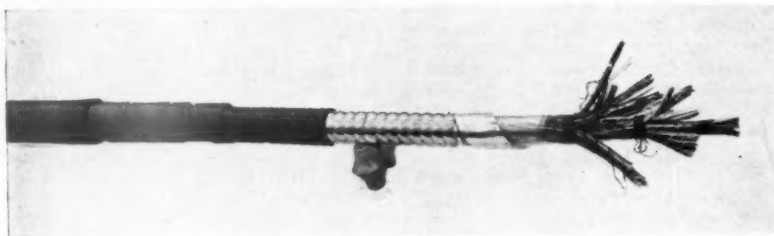
Connections between interlocking

cables, armoured to screen them against induction from the nearby high voltage overhead wires.

The telephone system follows normal L.T.E. practice, with dial type instruments at stations, signalboxes and other essential locations and magneto lines to the Traffic Controller at Leicester Square,

with aluminium sheath, the last spiralled for flexibility. Over this again is a layer of P.V.C. with double steel tape armouring and again P.V.C. overall. At joints and junction boxes the screens are rendered electrically continuous and earthed to the air pipe. After being connected through, the joint is placed in a metal tube with compressible rubber ends to seal against moisture. Allowance for different rates of expansion of sheath and armouring is made. The cable is firmly clamped at junction boxes, etc., and supported at 12-ft. centres on packing pieces on the brackets; it can thus drop down at the intermediate ones on a rise in temperature. At Campbell Road Junction each telephone line has an isolating transformer with lightning arrester on the Barking side to protect against voltage surges. Arresters are provided also at points where the lines enter and leave the Barking telephone exchange.

The majority of the signalling apparatus was supplied by the Westinghouse Brake & Signal Co. Ltd., London. Cables were provided by General Cables Co. Ltd., and British Insulated Callender's Cables Limited. The whole of the work, with that remaining to be completed, has been designed and carried out to the requirements of Mr. C. E. Dunton, Chief Civil Engineer, London Transport Executive, by the Signal Department staff under the direction of Mr. R. Dell, Signal Engineer.



Special 54 or 74 pair quadded 20-lb. conductor steel-armoured cable for telephone circuits with polythene insulation and aluminium screening

machines and points and signals are run in either lead covered twin cable or special three-core screened cable, with each core surrounded by a copper screen. No single core lead covered cable is used. Connections across the track to train-stops, points, etc., are carried in a new neoprene covered screened cable, reinforced sufficiently to enable it to lie on the ballast without fear of damage. Interlocking machine rooms are connected to their controlling signal-boxes by special thin wire 61- or 127-core

yardmaster, etc., and a 100 line automatic exchange at Barking functioning as a satellite of the one at Aldgate, with 12 both-way junctions using high frequency carrier operating over two pairs of lines.

Cables

All telephone cables have been carefully screened. A special 54 or 74 pair quadded 20-lb. conductor cable, polythene insulated and P.V.C. sheathed, has been produced. The formed up cable is bound with polythene tape and a copper screen

Cold Storage and Refrigerator Transport in Western Australia

(Concluded from page 131)

Each compartment is fitted with 105 removal meat hooks carried on longitudinal bars. The hooks are tinned whereas the bars and brackets are heavily galvanised as a protection against corrosion. Drains with pipes are fitted in the floors of the main and ice compartments. Two of the vans have been fitted with roller bearings on all axle-boxes. Five more vans of this class are scheduled for construction, making 13 in all.

Refrigerated Vans

Three vans termed "VDR" have been placed in service for the carriage of frozen foods. The introduction of these wagons stemmed from the conversion of three "VD" class 36-ft. bogie louver vans to partial mechanical refrigeration by the Midland Shops in 1957. As modified, these vehicles had one half replaced by a 530-cu. ft. capacity refrigerated compartment with the remaining portion set aside for naturally-ventilated perishable freight.

Refrigeration for these wagons is by a Stone-Carrier mechanical compression unit of 3½-ton capacity powered by an axle-driven 32-V. generating plant without storage batteries. Insulating materials are 6 in. thick throughout the refrigerated compartment. Different insulants were applied to car walls and roof consisting of Tropical blanket, Onozote and bitumen bonded slagwool.

Before on-rail movement, the refrigerated section is pre-cooled by the d.c. motor belt-coupled to an a.c. motor powered from an external three-phase supply. In this way, the d.c. motor acts as a generator supplying d.c. power to the condenser, blower fan, and control circuits.

The W.A.G.R. has also added three combined louver-refrigerator vans into traffic on an unusual special-user basis. These are converted "VD" louver vans which have been partially rebuilt for the conveyance of Peters Ice Cream Company products. Half of the car comprises a refrigerated compartment with space for 1,000 gall. of ice cream while the remainder retains its original louver construction and is available for W.A.G.R. perishable traffic.

These vans were rebuilt at the Midland Junction Shops and differ from the other "VDR" louver/refrigerator vans in that cooling is provided by a diesel-powered refrigerating unit which has a fuel capacity sufficient for 22 hr. running.

Refrigerated Containers

At the latter end of 1958 the Railway Department placed in service six portable refrigerated containers. These containers were built in Victoria for the Western Australian Government Railways and are used for the transport of snap-frozen food and frozen meat. Each unit has a capacity of 450 cu. ft. and adjustable controls on each container make them suitable for the conveyance of all types of perishable goods.

SUCCESS OF LUNCH-HOUR TRAVEL FILM SHOWS AT ST. PANCRAS.—The film shows which British Railways, London Midland Region, has arranged at St. Pancras are reported to have been attended by large audiences. The films feature travel in Britain and on Continent. Displays are at 1.10 p.m. on the Wednesdays, in the Party Catering Room, Platform 7.

LONDON MIDLAND REGION STAFF SAFETY COMPETITION, 1959.—Mr. David Blee, General Manager, British Railways, London Midland Region, last week, presented £100 in Premium Bonds to three winners of the Staff Safety Competition held in the Region in 1959. The annual national safety campaign is promoted throughout industry by the Royal Society for the Prevention of Accidents and last year's campaign was directed to the prevention of accidents in connection with manual lifting and handling of goods. Competitors were asked to list 12 working practices in order of merit.

WESTINGHOUSE ENGINEERING COURSES FOR SCHOOLBOYS.—The introduction to industry training courses arranged by the Westinghouse Brake & Signal Co. Ltd. are again available to boys taking "A" level science subjects in the General Certificate of Education examination. The courses are held at the company's works at Chippenham. Two will be held next April. They are designed to give a good insight into the engineering industry, its training facilities, and future prospects. Travelling expenses are allowed to boys living more than five miles from the works, and lodging expenses to those from further afield. Midday meals also are provided. Each course lasts from Monday to Friday. Applications should be sent to the Personnel Superintendent at Chippenham Works before March 1.

First Diesel-Electric Locomotive Completed at Darlington

Weight saving through re-design of mechanical parts, including greater use of light alloys, and changes to power equipment

THE first of 20. Type "2" Bo-Bo diesel-electric locomotives of 1,000-1,365 h.p. to be built at the Darlington North Road Locomotive Works of the North Eastern Region of British Railways, No. D.5094, has been completed.

Intended for both passenger and freight duties, two of these locomotives, Nos. D.5094 and D.5095, will go into service in the Eastern Region and the remaining 18 (Nos. D.5096—D.5113 inclusive) are for service in the North Eastern Region.

Leading particulars are as follow:—

	ft.	in.
Length over buffers	50	6
Bogie centres	28	0
Bogie wheel base	8	6
Wheel dia.	3	9
Weight in working order	75	tons
Maximum designed speed	75	m.p.h.

Although these locomotives are similar to others, described in our July 25, 1958, issue, being built in the Derby and Crewe Locomotive Works of the London Midland Region, they incorporate some modifications designed to save weight. These modifications will appear in subsequent locomotives built at Crewe and Derby.

Modifications to Save Weight

The modifications comprise detailed re-design of the mechanical parts, including a more extensive use of light alloys, and changes to the power equipment including the use of thinner steel plates in the engine, and the use of an exciter-

less generator. The main contract for power equipment was placed with the British Thomson-Houston Co. Ltd., the traction interests of which have been taken over by the Traction Division of Associated Electrical Industries Limited.

The diesel engine is the Sulzer 6LDA28 six-cylinder-in-line engine which develops 1,160 h.p. at 750 r.p.m., and which is now under large-scale production by Vickers-Armstrongs (Engineers) Limited, at Barrow-in-Furness.

The electrical equipment comprises a generator unit, traction motors, controls, certain auxiliaries, and signal and protective devices.

The generator is of the two-winding type with self- and separately-excited fields, the latter being controlled by an automatic load regulator operated by the engine governor. The generator is solidly coupled to the engine and the armature of an auxiliary generator is mounted on the same shaft.

The four traction motors are of conventional design, nose-suspended in chevron rubber units and driving through resilient gears.

Control Gear

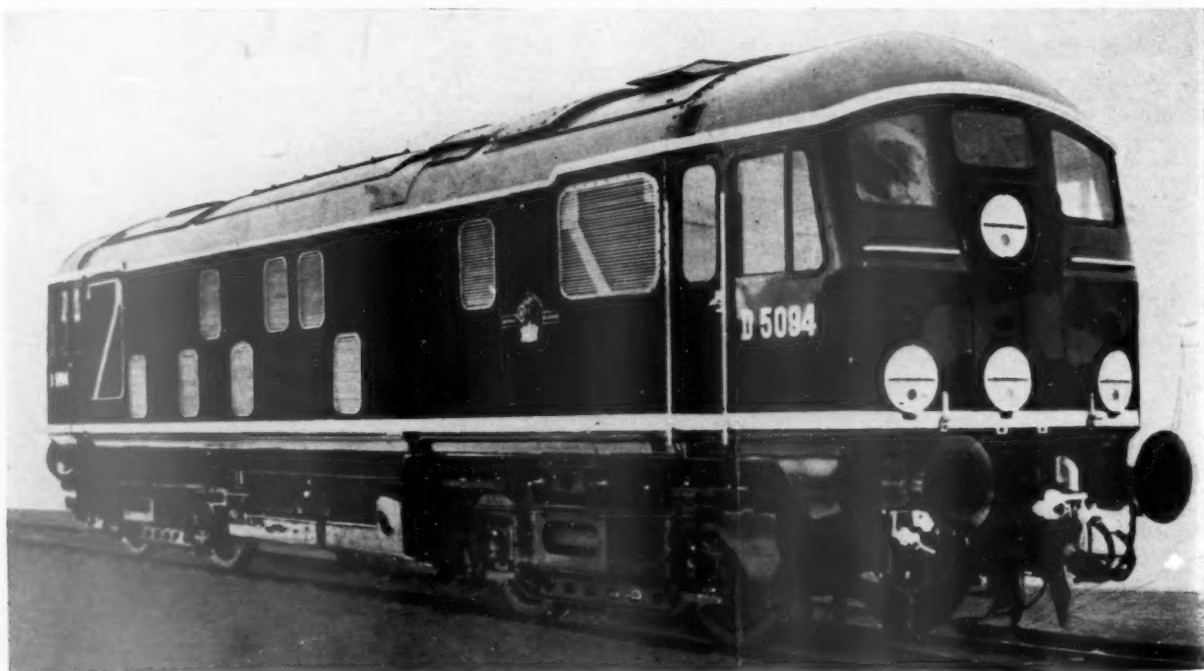
The control gear comprises a main frame, housed in a dust-tight compartment, reverser, contactors, voltage regulator, relays and so on. There is also a driver's control pedestal at each driving position incorporating instruments and a deadman pedal.

There are also various signal and pro-

TECTIVE devices, and provision for coupling in multiple with other locomotives. Provision has been made for the automatic warning system, the apparatus for which will be fitted as soon as it becomes available from the manufacturers.

These locomotives have been designed to the requirements of the British Transport Commission under the general direction of Mr. J. F. Harrison, Chief Mechanical Engineer, and Mr. S. B. Warder, Chief Electrical Engineer, British Railways Central Staff, British Transport Commission. Supervision of construction is the responsibility of Mr. M. G. Burrows, Chief Mechanical & Electrical Engineer, North Eastern Region, British Railways (York), and the work has been carried out under the immediate supervision of Mr. J. S. Scott, Works Manager, Darlington.

NEW MICROCELL COMPANY.—Microcell Limited announces that its Commercial Engineering Division has been formed into a subsidiary company, Microcell Engineering Limited. The members of the board are Mr. Henry Kremer, Mr. J. J. Molins, Mr. L. R. Rutherford, Mr. L. Avis (Technical Director), and Mr. D. J. Dolamore (Works Director). The intention is to enable the expansion programme planned for the Commercial Engineering Division to be carried out with greater effect. Besides general engineering work the company will be manufacturing seats for railway vehicles, motorcars, motorcoaches, and so on.



Type "2" diesel-electric mixed-traffic locomotive, D.5094, the first of 20 to be built at Darlington Works, British Railways, North Eastern Region

RAILWAY NEWS SECTION

PERSONAL

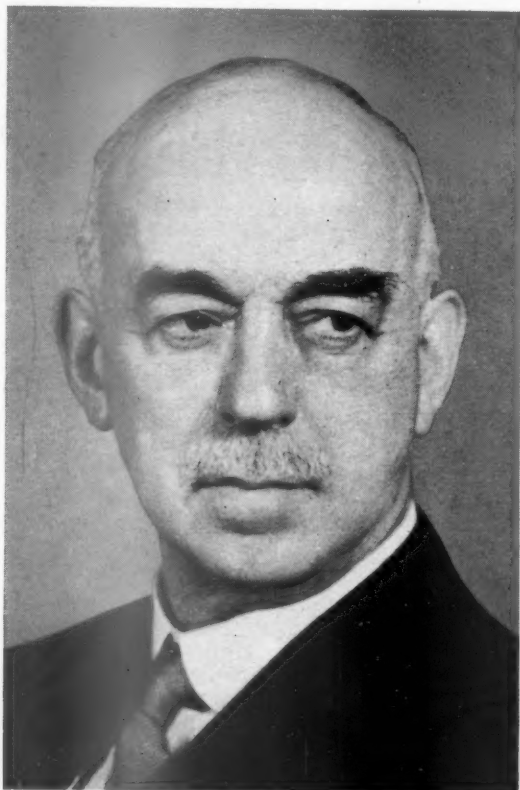
We regret to record the death on January 23, at the age of 76, of Mr. G. L. Darbyshire, C.B.E., M.Inst.T., Chief Regional Officer, London Midland Region, British Railways, from 1948 to 1949. Mr. Darbyshire joined the London & North Western Railway in the Traffic Department at Crewe in 1898, and was appointed Chief Staff Clerk in the Divisional Superintendent's Office at Liverpool in 1910. Nine years later he was transferred to the Staff

Mr. J. W. Armit has been appointed a member, Scottish Area Board B.T.C., and has relinquished his membership of the North Eastern Area Board.

We regret to record the death on January 18, at the age of 56, of Mr. James Buckley, Works Manager and a Director of Thomas Robinson & Son Limited.

We regret to record the death in Calcutta, on January 5, of Mr. P. C. Mukerjee,

became the first General Manager of the Indian Railways' Locomotive Works at Chittaranjan. During his last year at Chittaranjan he also worked as a member of the Defence Ministry's Ordnance Factories Reorganisation Committee. Mr. Mukerjee was appointed General Manager of the Eastern Railway early in 1954, and, later the same year, became a Member of the Indian Railway Board. He was made Chairman of the Board in 1957, the position from which he retired last year.



The late Mr. G. L. Darbyshire
Chief Regional Officer, London Midland
Region, 1948-49



The late Mr. P. C. Mukerjee
Chairman of the Indian Railway Board,
1957-59

Department of the General Manager's Office at Euston, and he became Chief Officer for Labour & Establishment of the London Midland & Scottish Railway in 1930. In 1939 Mr. Darbyshire was made a member of the L.M.S.R. Executive Committee. During the 1939-45 war he acted as Chairman of the Railways Staff Conference and of the Staff Committee of the Railway Executive Committee. In 1943 he was appointed a Vice-President of the L.M.S.R., becoming Acting President in 1947, and Chief Regional Officer of the London Midland Region of British Railways in 1948. He retired from this position at the end of 1949. He was made an O.B.E. in 1939, and was awarded the C.B.E. in 1945.

APPRECIATION

George Darbyshire was a good friend to me, with wise counsel and much kindness, as he was to many others. His railway life was full of service to other people and distinguished to himself, and he will be remembered when a lot of other people are forgotten.
—J. E.

M.A.(Cantab.), M.I.E.(Ind.), Chairman of the Indian Railway Board from 1957 to 1959. Mr. Mukerjee was born in 1904, and educated at Calcutta and Clare College Cambridge. He began his career, at the age of 21, as Assistant Engineer with the former East Indian Railway, in 1925, and subsequently became Assistant Superintendent (Staff), Employment Officer, Executive Engineer, and Personnel Officer (Senior Scale). During the 1939-45 war his services were requisitioned for the Department of Munitions Production, where he successively held the positions of Deputy Director, Director (Civil Engineering), and Deputy Director-General (Engineering). In 1946 he became Controller of Railway Supplies, Railway Board. He was also Deputy Director-General (Development), Indian Government Industries & Supplies Department. Mr. Mukerjee returned to the East Indian Railway, in 1947, as Deputy General Manager (Works), and after a brief period of service as Divisional Superintendent, was appointed General Manager of the Bengal Nagpur Railway in April, 1948. In 1949 he

Mr. P. Hoon, Controller of Stores, North Eastern Railway, India, has been appointed Controller of Stores, Eastern Railway. Mr. C. D. Ellicott, Officiating Controller of Stores, Eastern Railway, has been transferred to the North Eastern Railway in place of Mr. Hoon.

We regret to record the death on January 15, at the age of 64, of Mr. Charles Perry, Head Office Inspector, London Tilbury & Southend Line, Eastern Region, British Railways. Mr. Perry had worked at every station on the London, Tilbury & Southend Line and was Chairman of the Station Masters' Discussion Group.

Mr. M. B. Sellars, Assistant Divisional Shipping Manager, Southampton, Southern Region, British Railways, has been appointed Divisional Shipping Manager & Harbourmaster, Newhaven. He succeeds Mr. P. Murdoch, who, as recorded in our January 1 issue, has been appointed Docks Manager, Middlesbrough & Hartlepool Docks, British Transport Docks.

Mr. A. S. Hamid, Deputy Chief Accounts Officer, Southern Railway, India, has transferred to the Northern Railway in the same capacity. He succeeds Mr. D. D. Ohri.

Mr. Maynard A. Metcalf, System Vice-President of Traffic, Canadian National Railways, who, as recorded in our November 6 issue, retires this month, was born at Toronto Junction, Ontario, in 1910. Mr. Metcalf joined the former Canadian Northern Railway, in 1910, as a junior clerk, and in 1917 was appointed Secretary to the General Manager. A year later he became Secretary to the Assistant Vice-President and, in 1920, Secretary to the Vice-President, Operation &

Mr. K. S. A. Padmanabhan, Joint Director, Finance (Accounts), Indian Railway Board, has been appointed Deputy Chief Accounts Officer, Northern Railway. He succeeds Mr. L. B. Ramchandani.

Mr. A. B. Middleton, Passenger Assistant to the Line Traffic Manager (Great Eastern), Eastern Region, British Railways, has been redesignated Trains Assistant in the same department.

Mr. F. J. Cox has been appointed Resident Technical Representative of D. Napier & Son Ltd., in South-East Asia. He will cover Burma, Borneo (including British North

Mr. S. A. H. Bukhari, Principal, Walton Railway Training Centre, Pakistan, has been appointed Chief Commercial Manager, North Western Railway, Pakistan.

We regret to record the death, on January 18, of Mr. James Buckley, Director & Works Manager, Thomas Robinson & Son Limited.

Mr. A. H. Hart, Special Assistant in the Traffic Department of the Canadian National Railways, who, as recorded in our November 13 issue, has been appointed System Vice-President of Traffic, was born at Regina and educated in Dartmouth and



Mr. M. A. Metcalf
System Vice-President, Traffic,
C.N.R., 1954-59



Mr. A. H. Hart
Appointed System Vice-President,
Traffic, C.N.R.

Construction. After the formation of the Canadian National Railways, he moved to Montreal, as Secretary to the Operating Vice-President. He was appointed Secretary to the President in 1934, and Assistant to the President in 1936. Mr. Metcalf became Executive Assistant to the President in 1943, and System Vice-President of Traffic in 1954. He was awarded the C.B.E. in the Canadian Dominion Day Honours in 1946.

Mr. R. G. Durston has been appointed a Director of the Emu Bay Railway Co. Ltd., in place of the late Mr. W. S. Jones

Mr. Trevor V. Woods has been appointed a Director of the Potteries Motor Traction Co. Ltd., in the place of Mr. R. J. Ellery who has resigned.

Mr. Charles E. Dobson, General Freight Agent, Winnipeg, Canadian National Railways, has been appointed Assistant Freight Traffic Manager in charge of Rates, Tariffs & Divisions.

Borneo, Brunei and Sarawak), Indonesia, the Federation of Malaya, Singapore and Thailand. Mr. Cox will be based at the following address: 34B, Golden Valley, Rangoon, Burma. Cable address: Napier, Rangoon.

Mr. A. E. Gregg has been appointed a Director & General Manager, Crompton Parkinson (Chelmsford) Limited.

Mr. H. H. Mason, District Motive Power Superintendent, Carnforth, London Midland Region, British Railways, has been appointed District Motive Power Superintendent, Bank Hall, Liverpool.

We regret to record the death on January 23, at the age of 77, of Mr. W. E. Jewell, Distribution Engineer, Metropolitan Railway, from 1923 until his retirement in 1942.

Mr. Curtis M. Klaerner has been appointed a Director of Mobil Oil Co. Ltd. with effect from January 18. He succeeds Mr. Arthur L. Lanckton, who has resigned.

Halifax. He completed his pre-law requirements at Dalhousie University in 1939 and entered Dalhousie Law School. In 1940 he enlisted with the Royal Canadian Artillery, and served in Canada, Newfoundland, England, and North-West Europe. In 1945 he retired from active service with the rank of Major and returned to Dalhousie Law School. He obtained his LL.B. in 1947 and was admitted to the Bar of Nova Scotia in the same year. He was a solicitor in the Department of the Attorney-General for Nova Scotia before joining the C.N.R., at Montreal, in 1949, as an assistant solicitor. Mr. Hart was appointed Special Assistant in the Traffic Department in 1954.

Sir Frederick Scopes has joined the Board of Chamberlin & Hill Limited, and has been elected Chairman. He is Chairman of the Stanton Ironworks Co. Ltd., and a Director of Stewarts and Lloyds Limited. His new appointment is in a personal capacity and there is no question of any financial connections between Chamberlin & Hill Limited and the other two companies.



Mr. S. W. Smith

Appointed Assistant Divisional Traffic Manager, Manchester, L.M. Region

Mr. S. W. Smith, Traffic Assistant to the Divisional Traffic Manager, London, London Midland Region, British Railways, who, as recorded in our December 11 issue, has been appointed Assistant Divisional Traffic Manager, Manchester, joined the L.N.E.R. in the Chief Accountant's Department, Kings Cross. He was later transferred to the Chief General Manager's Office for work in connection with the Road and Rail Traffic Acts. In 1933 he was appointed a traffic apprentice. After his training in the North Eastern Area, he again served in the Chief General Manager's office, Kings Cross, and subsequently occupied positions under the District Operating Superintendent, Hull, and the Divisional General Manager, York. On the outbreak of the 1939-45 war he volunteered for military service and until October, 1945, served in the Royal Engineers, Movement Control Branch, as a Senior Railway Transport Officer. After his release he took up the position of Yardmaster, Darlington. In 1947, he became Assistant Carriage Manager, Southern Area, L.N.E.R., moving in May, 1950, to Paddington in a similar position on the Western Region. In October, 1951, he became a Traffic Costing Officer in the newly formed Traffic Costing Service, Railway Executive Headquarters. He subsequently served in that capacity at Waterloo and at the British Transport Commission. In 1955, he was transferred to the Secretariat of the Area Management Costs & Statistics Panel at the B.T.C., becoming its Secretary in 1957. In March, 1958, he was appointed Traffic Assistant to the Divisional Traffic Manager, London, in the newly-formed London Midland Divisional organisation.

Mr. R. H. Vivian has joined the Wireless Telephone Co. Ltd., as Chief Engineer.

Mr. Alan J. Marles, Assistant Technical Manager, Ransome & Marles Bearing Co. Ltd., has been appointed Technical Manager.

Mr. W. H. Longley has been appointed Director & Chief Accountant, Simms Motor Units Limited.

Mr. J. F. Robertson, Financial Director & Treasurer of the Hawker Siddeley Group Limited, has been appointed a Director of Bristol Siddeley Engines Limited.

Mr. J. D. Lewis, Director, Atlas Engineering Company, is on a short visit to the German, Austrian, and Swiss Railways.

We regret to record the death, in the air disaster in Turkey, on January 19, of Mr. Rune Lemner, Manager of the Marketing Department Atlas Copco AB, Stockholm.

Mr. John L. Lutyens has been appointed Group Director of Research for the Pressed Steel Co. Ltd. He has also joined the company's Motor Car Body Divisional board.

Mr. D. Edmundson has been appointed General Manager of the Rugby Works of Associated Electrical Industries (Rugby) Limited, in the place of Mr. H. E. Cox who has resigned to devote his time to the duties of Deputy Director of Manufacture.

Sir Alexander Sim has resigned his position of Chairman, W. T. Henley's Telegraph Works Co. Ltd., and Director of the subsidiary and certain associated companies. Dr. J. N. Aldington, a Director of the company, has been appointed Chairman. Dr. P. Dunsheath has retired from the board of directors, after 40 years with the company.

Mr. R. P. Brookes, a Director of Guest Keen & Nettlefolds, Limited, has been appointed to the board of Joseph Sankey & Sons Ltd., and Mr. J. R. Martin, a Director of the latter company, has been appointed General Manager of Hadley Castle Works in the place of Mr. G. B. Sankey, who has been appointed Assistant Managing Director of the company. Mr. F. W. J. Hibbard and Mr. W. W. Watt have been appointed Directors.

THE INSTITUTE OF LOCOMOTIVE ENGINEERS

The following names have been entered on, or transferred in the register of the register of the Institution of Locomotive Engineers:—
Associate Members:

Mr. H. A. G. Arends, Designer-Draughtsman, Birmingham Railway Carriage & Wagon Co. Ltd.

Mr. R. J. W. Cartledge, Contracts Engineer, W. G. Bagnall Limited.

Mr. G. C. N. Elliot, Maintenance Assistant to C. & W. Works Manager, North Eastern Region, British Railways.

Mr. D. H. H. Gooden, District Mechanical Engineer, Broken Hill, Rhodesian Railways.

Mr. G. H. Griffith, Distribution Engineer-Deputy E. T. E., Manchester, Eastern Region, British Railways.

Mr. F. Moxon, Acting Rolling Stock Engineer, C.M. & E.E.'s Department, Manchester, London Midland Region, British Railways.

Mr. T. H. Rudge, Chief Project Engineer, Traction Department, Serck Radiators Limited.

Mr. D. Singh, Senior Mechanical Engineer, New Delhi, Northern Railway, India.

Associate:
Mr. E. Atkinson, Technical Officer, Shell-Mex & B.P. Limited.

Graduates:
Mr. B. W. Ison, Technical Assistant, Electric Traction Section, Derby, London Midland Region, British Railways.

Mr. J. Sondhi, Assistant Mechanical Engineer (Prob.), Railway Board, India.

Mr. M. Wadhvani, Assistant Mechanical Engineer (Prob.), South Eastern Railway, India.

Student:
Mr. P. J. Abbott, Engineering Apprentice, Locomotive Works, Eastleigh, Southern Region, British Railways.



Mr. P. Murdoch

Appointed Docks Manager, Middlesbrough & Hartlepool Docks, B.T.C.

Mr. Peter Murdoch, Divisional Shipping Manager & Harbormaster, Newhaven, Southern Region, British Railways, who, as recorded in our January 1 issue, has been appointed Docks Manager, Middlesbrough & Hartlepool Docks, British Transport Docks, entered the service of the Southern Railway in 1946, as a Cadet. He was allocated to the Docks & Marine Department at Southampton for special training. Mr. Murdoch subsequently transferred to the Headquarters of the Docks & Inland Waterways Executive in 1948, and was appointed Assistant to the Docks Manager, Scottish East Coast Ports, in 1950, being responsible for Methil and Burntisland Docks. In 1955, Mr. Murdoch was transferred to South Wales Docks acting as Assistant Dock Manager, Barry Docks, to which position he was appointed in June, 1956. In October, 1956, Mr. Murdoch returned to the British Railways, Southern Region, being appointed Assistant Divisional Shipping Manager, Dover, and, in the following year, was promoted to be Divisional Shipping Manager & Harbormaster at Newhaven, the position he relinquished to take up his present appointment.

Mr. H. H. E. Georgel has been appointed Contracting Division Manager, Consolidated Pneumatic Tool Co. Ltd. He succeeds Mr. H. H. Hicks.

Mr. A. E. Reddell has been appointed a Director of Vickers-Armstrong (Engineers) Limited, and to the office of Director-in-Charge, Weymouth Works. Mr. F. A. E. Pritchard has been appointed a Special Director and to the office of General Manager, Weymouth Works.

Mr. A. Dormer, Chairman & Joint Managing Director, Sheffield Twist Drill & Steel Co., Ltd., has been appointed Second Vice-Chairman of the Gauge & Tool Makers' Association to fill the vacancy caused by the death of Mr. H. G. Carmichael Wilson. The officers of the Association for 1960 are: Sir Stanley J. Harley, President; Mr. F. W. Halliwell, immediate Past-President; Mr. A. L. Dennison, Mr. H. S. Holden, Mr. T. Ratcliffe, and Mr. L. E. Van Moppes, Vice-Presidents; Mr. G. P. Barrott, Chairman; Mr. R. Kirchner and Mr. A. Dormer, Vice-Chairmen; and Mr. J. C. Brown, Honorary Treasurer.

NEW EQUIPMENT AND PROCESSES



Bulk Loading Control Valve

WITH the increasing number of diesel locomotives coming into service, it is desirable for fuelling operations to be carried out as speedily and efficiently as possible. Occasionally the loading of the diesel locomotive tanks has been left to one operator who watched a number of gauges simultaneously. In practice, this method led to considerable wastage from overfilling and gave rise to a greatly-increased fire risk. The higher fuelling rates which are now expected make the problem even more serious. To overcome these difficulties, the Zwicky "Full-Stop" Bulk Loading Valve offers the following advantages: quicker turn-round of locomotive during refuelling; reduced fuel wastage; minimised fire risk; reduced labour cost as one operator can refuel several locomotives simultaneously without waste.

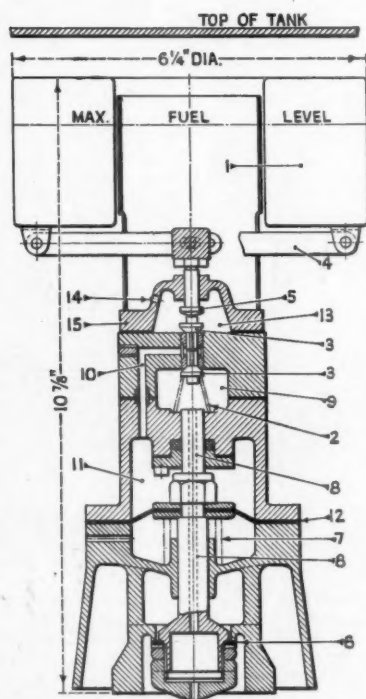
The valve is mounted on a flange at the top of a vertical pipe within the fuel tank. This flange should be approximately 11½ in. from the top of the tank, allowing fuel to rise to a level 1 in. below the tank top. The lower end of the vertical pipe passes through the bottom of the tank and is fed into a fuelling gallery which is common to all tanks and which in turn is fitted with a self-sealing coupling.

Assuming the tank to be empty, the float (1) will be in the lower position and will have overcome the pilot-valve spring (2) and moved the pilot valve assembly (3) to open the lower valve and close the upper. The float movement, which totals about ½ in., is transferred through linkage (4) and plunger (5). With the main fuelling coupling connected, fuel is fed through the gallery to the main valve (6) which is held closed by the main spring (7). Pressure sensed on the main valve is bled through the drilling (8) in the

valve spindle to the lower pilot valve chamber (9), through the open pilot valve into the body drilling (10) and thence to the diaphragm chamber (11). A pressure of 4 lb. per sq. in. on the diaphragm will overcome the main-valve spring and open the main valve, allowing the fuel to flow into the tank.

When the tank is nearly full the float is lifted, allowing the pilot-valve spring to re-assert itself, closing the lower pilot valve and opening the upper. This shuts off line pressure from the fuel gallery to the diaphragm and relieves the pressure on the latter through the body drilling, the pilot valve, into the upper pilot valve chamber (13) to tank atmosphere through the drilling (14) in the pilot valve cover (15). In this condition the main spring re-asserts itself, closing the main valve, so shutting off the fuel flow to that tank.

When used at a pump stall pressure of 24 lb. per sq. in. the valve characteristics are: opening occurs at an inlet pressure of



4 lb. per sq. in.; a single valve passes 64 gal. per min. with an inlet pressure of 10 lb. per sq. in.; two valves pass 40 gal. per min. each, with an inlet pressure of 6 lb. per sq. in.; four valves pass 22 gal. per min. each, with an inlet pressure of 4 lb. per sq. in. It is stated by the manufacturer that on seven tests carried out with two valves in separate tanks, the tanks run both singly and together, the fuel metered was between 347.5 and 348 gal., an operating efficiency of 99.5 per cent.

Further details may be obtained from Zwicky Limited, Bedford Avenue, Slough Trading Estate, Slough, Bucks.

Insecticidal Paint

PITAN insecticidal paint is a decorative surface coating which is supplied ready for application by brush, roller, or spray and which kills pests although it is harmless

to human beings and animals. The insecticides contained within the paint are stated by the manufacturer to be continually released over a period of at least two years in the form of a fine crystalline film on the surface, which causes flies, cockroaches, and so on to be paralysed and to die within 40-60 min. of making contact.

A wide range of colours is available in gloss finishes for all domestic, industrial, shop, and hospital interior decoration schemes. For steelwork, Pitane metallic lead primer followed by one coat of Pitane undercoat is recommended, allowing a minimum drying time of 48 hr. before applying a single coat of Pitane insecticidal paint. For other surfaces, normal preparation before undercoating should include the application of Pitane pink lead primer for new woodwork, Pitane standard emulsion paint for hardboard, and Pitane alkali-resisting primer for new plaster, brickwork, and previously-painted surfaces. The covering capacity of clear Pitane insecticidal paint is about 80-90 sq. yd. per gal., and coloured, about 70-80 sq. yd. per gal. The price is 64s. per gal.

Further details may be obtained from Allweather Paints Limited, 36, Great Queen Street, London, W.C.2.

Hydraulic Pressure Switch

THE K.D.G. piston-type hydraulic pressure switch has been designed specifically to deal with hydraulic installations where high rates of operation and sudden applications of pressure are encountered.

Although developed primarily for machinery operating at high pressures, the switch could be of use to railway engineers in connection with fault protection gear and so on.

The pressure element consists of a stainless-steel housing and piston with an O-ring seal operating against a spring. This does away with the necessity for the oil-bleed return used on other designs. Two models are available: 0-2,000 and 0-5,000 lb. per sq. in. To ensure maximum life and low servicing cost there is a device to make easy the replacement of the seal in the event of it becoming worn. Also a spare ring and changing instructions are supplied with each switch. Models are available with pressure-setting dials.



Further details may be obtained from K.D.G. Instruments Limited, Manor Royal, Crawley, Sussex.

Threading Machine

THE 13G series threading machine is available in two forms both of which should be of value in railway workshops. The first version, 13GR (illustrated), has a radial diehead with a capacity of $\frac{1}{2}$ -6 in. tubes and $\frac{1}{2}$ -3 in. bolts. This incorporates a tapering mechanism and instantaneous 'ever release and close to the diehead. Secondly, the 13GT machine is fitted with a Landis 6-in. all-steel tangential diehead, capacity 2 $\frac{1}{2}$ -6 in. tubes, which incorporates automatic release. Alternatively a 4-in. tangential diehead can be supplied to deal with tubes of $\frac{1}{2}$ -4 in. and bolts of $\frac{1}{2}$ -3 in.

Features common to both machines include a substantial cast-iron bed with pick-off gear headstock including four spindle speeds, 7-18 r.p.m. The saddle is of narrow guide construction with self-centring vice incorporating a hammer-blow hand-wheel to eliminate operator fatigue. A leadscrew control can be fitted to the saddle of the 13GR machine if required at extra cost.

Further details may be obtained from Landis Machine-Maiden Limited, Maiden Division, Hyde, Cheshire.

Furnishing Fabric

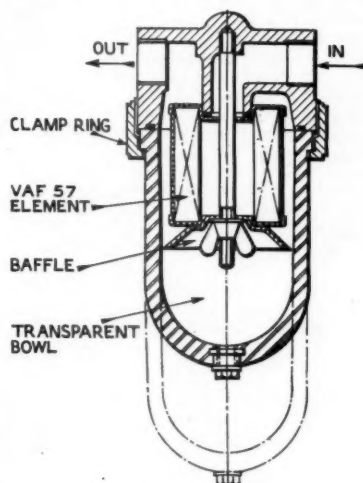
DURACOUR is a man-made furnishing fabric which is light and soft and yet it is abrasion-resistant and does not rub or tear. It is manufactured in a wide range of fast colours and designs and in three alternative weights suitable for light, standard, and heavy duty. The latter weight is intended for upholstery in passenger transport

vehicles for which purpose its strength and durability combined with elasticity on the bias enable a smart and attractive appearance to be retained over long periods of hard wear.

The weave of the loom-state fabric may be varied at relatively short notice and at low cost to give changes of design to meet the needs of individual industries. The finishes applied and the backing make the fabric both dirt- and dust-resisting and yet passenger comfort at all temperatures is assured by the ability of Duracour to breathe; also it feels warm to the touch in winter and cool in summer.

For normal cleaning it is only necessary to dust or brush the surface and most dirty marks are removed by gentle sponging with a cloth wrung out of cold water mixed with a very little mild detergent.

Further details may be obtained from Courlak Limited, Cheapside House, Cheapside, E.C.2, to the formation of which reference is made elsewhere in this issue.



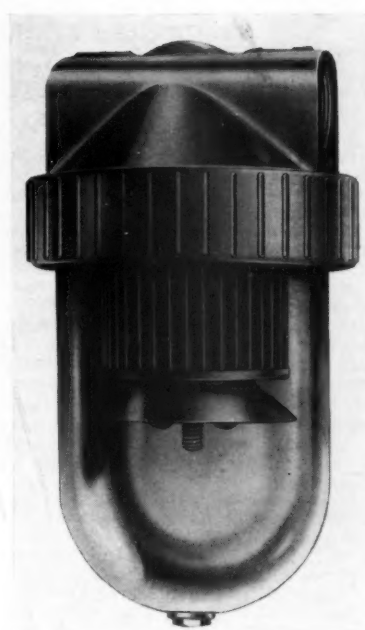
Air-line Filter

VOKES transparent bowl compressed air pipe-line filters have been designed for the continuous removal of abrasive pipe scale, other solids, and corrosive moisture from the supply air in $\frac{1}{4}$, $\frac{3}{8}$, and $\frac{1}{2}$ -in. air lines feeding tools, cylinders, and so on, and for valves and the exhausts from small vacuum systems. They have a low pressure-drop with high efficiency from two interchangeable element assemblies which give a choice of performance according to requirements.

The standard general-purpose element is the VAF57 shown in the illustrations and suitable for applications where removal of water or oil mist and grit is required but where concentrations are average. The alternative D-Pak element is for applications where oil or water mist removal is of primary importance and a high degree of purity is essential. Other types of element are available for special duties.

A smoothly-contoured die-cast light-alloy head houses the filter element which can be removed by unscrewing one nut. A ribbed and internally-threaded clamp ring secures the transparent plastic bowl which is of either $\frac{1}{4}$ or $\frac{1}{2}$ -pint capacity and has a static zone formed by a baffle at the base of the element to prevent reentrainment of collected contaminant. The standard units are capable of operation at up to 150 lb. per sq. in. Metal bowls are supplied for pressures in excess of this and up to 250 lb. per sq. in.

For servicing, a plug at the filter base



enables moisture and impurities to be drained off. The elements are designed for long life and, therefore, need replacement only after extensive service.

Further details may be obtained from Vokes Limited, Henley Park, Guildford, Surrey.

Four-wheel-drive Diesel Motor Lorry

THE Bedford R-type four-wheel-drive chassis hitherto available only with the six-cylinder petrol engine, can now be supplied with the Bedford six-cylinder, 97-b.h.p., 300 cu. in. diesel engine as a factory-installed option. Thus Bedford operators who need the tractive power of four-wheel drive for off-the-road conditions can have the advantages of diesel engine performance and fuel economy.

The kerb weight of the chassis is 300 lb. greater than the petrol-engine version, but gross vehicle weights remain the same at 18,000 lb. with 11'00 x 20 single rear tyres, and 21,600 lb. with twin rears. To accommodate the diesel power unit without the need for major changes to cab sheet metalwork, the engine mountings have been revised, and the unit is tilted away from the driver at 5 $\frac{1}{2}$ deg. from the vertical. Other associated changes include a new silencer and exhaust system, fuel tank assembly and associated fuel lines, a vacuum tank for the brakes, and minor alterations and additions to the controls. The general vehicle specification remains the same as that for the petrol-engined model. The diesel engine option costs £125 extra.

Further details may be obtained from Vauxhall Motors Limited, Luton, Bedfordshire.

Tube Expanding

An application of an Aro-Broomwade push/pull reversible taper is being used in the works of the manufacturer, Broom & Wade Limited, High Wycombe, Bucks, for expanding the tubes of aftercoolers. The tubes are of $\frac{1}{2}$ -in. dia. and the tool is run at 500 r.p.m.



Crompton Parkinson Limited in 1959

Substantial orders received from the British Transport Commission for traction equipment

For Crompton Parkinson Limited, 1959 was a year in which it was possible to take full advantage of the substantial programmes of preceding years covering the strengthening and extension of its manufacturing resources. It was possible for the company to consolidate, to devote particular effort to the development of its products and product ranges, and to advance its business in the face of increased competition. For an overall view of the company's progress, it is significant that the Chairman's annual statement shows that despite narrowing profit margins for several departments, the overall net trading return was almost equal to the previous year's record figure.

Switchgear Development

Of note in the development of static plant has been the introduction of spring-operated, manual-closing mechanisms for oil circuit-breakers, suitable for fault currents up to 21.9 kA. These mechanisms were developed to meet the requirements of the E.B. specification B.E.B.S.2. The Crompton Parkinson 11-kV range of switchgear has been extended to include a 2,000-A. unit with air- or compound-insulated bus-bar chambers and vertically isolated circuit-breakers. These units are suitable for operation on systems having fault powers of 500 and 750 MVA. and, in the latter case, the clearances are in accordance with B.S.159 Class B. Complete units have been subjected to short-circuit testing at 750 MVA. 11 kV, and heat runs at 2,000 A. continuously for 78 hr., which established for them a liberal margin on the permissible temperature rise.

Of interest in measuring instrument development are the ranges of miniature instruments now available from the company. The first range to be made available comprised 240 deg. circular scale moving coil instruments with 2 in. and 2½ in. dials for panel mounting. They represented a complete breakaway from the usual construction of instruments of this size, following in their basic design the robust and rugged construction of larger switchboard instruments. Also made available as the year closed was a range of miniature bench-type instruments in moulded plastic cases for educational establishments. These also have all the advantages of a 240-deg. circular scale movement, the first time for a small bench instrument, and have the same degree of accuracy as full-size industrial switchboard instruments.

Stud Welding

Stud welding, another important activity of the company, has also been developed considerably. In this sphere there have been many detail developments in line with the ever-expanding requirements of industry for this process. The increase in applications for the process has been widespread throughout industry, but notably there has been progress in the civil and structural engineering fields. In civil engineering the stud welding of shear connectors has been particularly notable, while in structural engineering there has been a marked increase in stud welding applications involving Setlok fasteners for double-skin curtain walling and for tank cladding.

The high light of the company's progress at its cable works in Derby has been the inauguration of a new Development & Research laboratory. Its extensive apparatus and equipment includes complete pilot plants for investigation of factory processes and the development of new products and manu-

facturing techniques. Considerable attention has been devoted to the use of thermoplastics. Such development work reflects the growing demand for thermoplastic insulated cables and the use of thermoplastics as anti-corrosion coverings on paper-insulated mains cables and also the use of these materials for the insulation of mains cables.

Electric Traction Equipment

Early in the year an order was received from the British Transport Commission for power equipments for 137 Type "4" main-line diesel-electric locomotives for use on the London Midland Region of British Railways. Each equipment comprises a diesel engine of 2,300 h.p. or 2,500 h.p. supplied by Sulzer Bros. (London) Ltd., coupled to a main and auxiliary generator; also, six traction motors and various auxiliary motors, batteries, cables instruments, and so on, by Crompton Parkinson Limited, together with a set of control gear manufactured by Allen West & Co. Ltd. This single order, representing over £10,000,000 worth of equipments, was the largest yet placed by the B.T.C. in connection with diesel locomotives under the modernisation plan.

In the latter part of the year, orders were received for 33 additional 1,550-h.p. Type "3" locomotive equipments, bringing the total

number of equipments in the 1,160/1,550 h.p. range, on order or delivered, up to 145. The latter orders included 12 equipments of special design for the limited loading gauge of the Hastings line, whilst all 33 include train heating generators and other features embodied in the 65 Type "3" equipments already on order.

During the year, delivery of 27 Type "2" locomotives of 1,160 h.p. incorporating Crompton Parkinson equipment for the Scottish Region has been completed by the main contractors, The Birmingham Railway Carriage & Wagon Co. Ltd., while several of the London Midland Region Type "4" locomotives, with equipment similar to that mentioned above, have entered service.

Switchgear and Transformers

Many contracts have been executed for electricity supply undertakings abroad, among the most notable of which are the supply of 33-kV. outdoor sub-stations under the Colombo development plan in Ceylon, and the work in hand covering the supply and eventual commissioning of switchgear and transformers for Basrah Power Station and two of its municipal sub-stations. These two projects involved contracts worth nearly £750,000. The export of transformers and switchgear has been particularly evident in this field, notably for power supply undertakings in Africa, India and Pakistan. Among such orders were those received from South Africa including two 72-MVA. generator transformers for the Electricity Supply Commission power station at Umgeni, Durban.

West of India Portuguese Guaranteed Railway Co. Ltd.

Many repairs and renewals effected. Good prospects for 1960

The seventy-eighth annual general meeting of the West of India Portuguese Guaranteed Railway Co. Ltd., was held at 343, Coastal Chambers, 172, Buckingham Palace Road, S.W.1, on January 20, 1959.

The Chairman, Sir William R. S. Sharpe, proposing the adoption of the report and accounts for the year ended March 31, 1959, reminded stockholders that the ore trade of Goa had suffered a severe recession in 1958 and early 1959; demand only revived in March, 1959. This resulted in a drop of exports of more than 1,000,000 tons, or some 35 per cent, compared with the record figures for 1957-58. This decline in trade was reflected in the accounts, which showed a loss on the year's working, which had been made good by the Portuguese Government under the terms of the contract of 1956.

During the year considerable repairs and renewals had been effected; new brake vans and ore wagons had been obtained, and three diesel shunting locomotives were on order. Track improvements included the provision of a crossing loop at Dabolim Station and extension of loading sidings at Kalay.

The chief development, however, was the opening of the mechanised loading plant on No. 6 berth on April 14, 1959, by His Excellency Engineer Carl Kruz Abecasis, Under Secretary of State for Oversea Development in the Portuguese Government. In the first seven months after the plant was opened, over 500,000 tons of ore had been loaded, despite the fact that this covered the period of initial teething troubles and the whole of the monsoon, which had been a heavy one.

Prospects for 1960

Prospects of trade during the current year were good, a total export in excess of 4,000,000 tons being possible.

Sir William Sharpe reminded stockholders

that the operation of the company in Goa was due to terminate on March 31, 1961, when notice of the termination of the contracts between the company and the Portuguese Government expired. The Board intended to repay the whole of the debenture stock as soon as possible after that date. No final decision as to the repayment of the company's capital stock could be taken at this stage.

Tribute to Staff

The Chairman offered a warm tribute to the General Manager, Colonel C. G. Blackford, O.B.E., and all the staff in Goa for their splendid work on the company's behalf in spite of formidable handicaps, and to Mr. W. G. Latham, the Secretary, and the London staff for their share in helping to solve the many difficult problems which had arisen from time to time.

Railway Benevolent Institution

A special meeting of the Railway Benevolent Institution will be held at the Railway Clearing House, Eversholt Street, N.W.1, on February 22, at 4 p.m., to amend bye-laws Nos. 10, 14, and 51-55, as follows:

10. The term "qualified member" is applied in these bye-laws to a railwayman who: (a) either qualifies as a life subscriber under these bye-laws or contributes to the General Fund and Casualty Fund of the Institution not less than 13s. a year (provided that members of the Officers' Department and the Servants' Department on the date of the adoption of these bye-laws may continue to make the contributions required of members of those departments under the Old Rules); (b) at the time he qualifies as a life subscriber or commences to contribute to the General

Fund is in good health; and (c) has not ceased for any reason to be a qualified member.

14. Any railwayman who produces a medical certificate that he is in good health shall be entitled: (1) to five years' membership as a qualified member upon payment of a personal donation in one sum of not less than 10 guineas under bye-law 5 and shall be credited with one year's additional membership for each subsequent completed year preceding receipt of assistance from the General Fund; (2) to five years' membership as a qualified member for each collection of 10 guineas or more within any one period of twelve months from new contributors under bye-law 9 and to one further year for each additional collection of 10 guineas or more in any one period of twelve months if the contributions are not made entirely by new contributors.

Casualty Fund

51. This fund to be raised and supported by a proportion of the qualified members' annual subscriptions, the proportion to be fixed from time to time by the Board or by special annual collections and under the direction of the Board to be expended on assistance to members who are in the service but who are disabled from work by accident, and to the widows and widowers of members or in the case of accidental death of a member to his or her next of kin.

52. To be deleted, and Nos. 53-55 to be renumbered 52-54.

Benguela Railway in 1958-59

The Chairman of Tanganyika Concessions Limited, Captain Charles Waterhouse, stated in his address to the recent annual general meeting of the company, that the board recommended a final dividend in respect of the year ended July 31, 1959, of 2s. 3d., making with the interim dividend of 1s. 6d. paid last June, the same total as previous year, 3s. 9d. The ordinary stock capital of the company was doubled by means of a bonus issue in 1958. Tanganyika Concessions Limited owns 90 per cent of the share capital of the Benguela Railway Company and all the income debentures.

On the Benguela Railway the difficult conditions prevailing in 1958, continued in the first half of 1959. Thereafter a marked improvement took place. Traffic arising in Angola, both minerals and agricultural products, showed a healthy revival. Mineral traffic from the Belgian Congo materially increased in volume.

The line had again carried a considerable tonnage of copper from Northern Rhodesia to the port of Lobito. A larger tonnage of copper from the Union Minière mines and works in the Belgian Congo had been moved south over the Rhodesia Railways to Beira. This interchange of traffic had the useful effect of keeping alternative transport routes open to both the great Central African copper producing areas.

Better metal prices had resulted in better freight rates. The fall in the net revenue of the earlier months was more than recovered and results for the year 1959 were expected to show a small but encouraging improvement on 1958.

He had been much struck by the great improvements recently carried out by the Harbour Authority in the port of Lobito and had seen the new ore handling plant in operational trials. Captain Waterhouse's journey on the Benguela Railway across Angola had enabled him to give a most favourable report on the condition of the track, which was now ballasted in stone throughout almost the whole of its length,

on the high state of efficiency of the rolling stock, and on the fine equipment of workshops and repair depots. Throughout the whole system the staff of the railway, from the General Manager, Engineer Augusto Bandeira, to the last-joined African recruit, had shown the finest possible spirit in meeting the exceptional demands which the rapid expansion of traffic during the last four or five months had imposed upon them.

St. Pancras—Bedford Diesel Trains, L. M. Region

A leading article in *The Daily Telegraph* of January 23 on the unpunctuality and breakdowns, in the early stages, of the St. Pancras-Bedford multiple-unit diesel services of British Railways, London Midland Region, stated that if all similar services had suffered the same difficulties, there should have been some means of eliminating the troubles in advance.

The General Manager of the Region, Mr. David Blee, in a reply published earlier this week, has pointed out that the diesel trains on the St. Pancras-Bedford line are of a different type, and it is the first time in Britain that a high-density diesel service of this type and importance has been introduced. In September, 1959, the first of these diesel trains was introduced into the ordinary steam-operated services on the St. Pancras line, and as the rest of the vehicles were delivered they were progressively put into service for trial periods.

During this time, he observes, none of the technical troubles which have been interfering with the services was experienced. Had they shown themselves then, it would have been simple to have dealt with them without interfering materially with the service. The reserve of four four-car sets has proved insufficient. The types of failures which caused the trouble could not have been foreseen.

Since the middle of last week, Mr. Blee adds, timekeeping has improved.

Bridge Reconstruction at West Drayton

The bridge at West Drayton, Middlesex, which carries five tracks of British Railways, Western Region, over the road link between the A40 Oxford Road and the London to Bath road is now being reconstructed to meet the requirements of the Middlesex County Council road improvement scheme.

The road-widening plan involves demolition of one abutment and the superstructure of the existing bridge, and the construction of a new one with a much longer span. At the request of the County Council, Mr. M. G. R. Smith, Chief Civil Engineer of the Western Region, undertook the work of designing the new structure and supervising construction.

The existing bridge has a width, between abutments, of only 25 ft., including one footpath and insufficient headroom for double-deck buses. The new bridge will have an overall width, between abutments, of 57 ft. 6 in., which will be made up basically, of a 30-ft. wide carriageway with an 8-ft. wide footpath on each side. The headroom will be increased to 16 ft. 6 in.

Pre-stressed R. C. Deck

The existing steel superstructure will be replaced by a pre-stressed reinforced concrete deck supported by 16 inverted L-shape concrete columns, eight each side of the road. The deck itself will be erected in three stages.

The existing abutment on the London side

will remain, but is being strengthened, also in stages, starting from the northern side. The same system of stages also applies to the excavation for, and construction of, the new abutment on the Reading side. Temporary bridges, which are the cause of the speed restrictions, are already in position to allow this work to be carried out under the branch and the two relief lines. As from Sunday, January 17, temporary girders were erected under the up main line, and the down main was similarly treated last Sunday.

Speed Restrictions

The new bridge deck is expected to be in place towards the end of May, and speed restrictions will therefore be in operation until approximately the end of that month.

To minimise delays to trains reconstruction was planned to take place during the winter when traffic is less intense, and erection of temporary girders, dismantling of the old superstructure and erection of the new deck beams is being carried out on Saturday nights and Sundays.

Staff and Labour Matters

N.U.R. Wage Claim

Following an approach from the N.U.R., the Chairman of the British Transport Commission met representatives of the N.U.R. on January 22.

The decision to ask for a meeting with the Chairman arose from a decision of the union's executive committee: "to seek an immediate meeting with the Chairman of the B.T.C. with a view to obtaining an immediate interim increase in salaries and wages." This decision was taken because of pressure from the union's district councils and branches. At the meeting with Sir Brian Robertson, the union representatives stated their reasons for asking for an immediate interim increase.

The Chairman of the Commission stated he would get in touch with the General Secretary of the N.U.R. the following week to give the Commission's reply.

Meanwhile, three more railway district councils of the union have decided not to support the token strike called for February 1 by some London railwaymen.

At a meeting of the Midland District Council the following statement was issued:

"Extreme dissatisfaction has been expressed by all delegates at the slow progress being made in resolving the pay review and the reasons leading up to the decision of the London District Council are fully appreciated. However, in view of recent developments, the Midland District Council have decided not to support our London colleagues at this time, but to urge our national executive council to take steps to have our just demands met and to support them wholeheartedly in any action they deem necessary.

"This district council, while supporting the national executive council in the steps taken to safeguard our membership in their claim for higher pay, do strongly urge that they accept no increase which does not concede the full amount of our original claim when the 3 per cent wage increase was granted, and to include also an adequate amount based on the cost of living.

"We further urge that representations be made industrially and politically to urge amendment of the generous compensation arising from the 1947 Transport Act in order to pay such increases. Further, in view of the disastrous consequences both to the nation and railwaymen in particular, under the present Government

transport policies, we recommend the full uses of our industrial power to win our just claims."

Pay and Hours—Railway Shopmen

At a meeting of the Railway Shopmen's National Council on January 21, the Employees' Side of the council submitted a claim for a substantial increase in the rates of pay of railway workshop staff, and for the introduction of a 40-hr. week without loss of pay.

The claim for improved rates of pay was based on cost of living, comparison with wage levels in other industries and the effects of the Modernisation Plan and economy measures on the staff.

The claim for a shorter working week follows developments in outside industry under which the normal working week has been reduced in a number of instances.

The Commission's representatives on the council undertook to consider the submissions of both claims and to give their answer as soon as possible.

B.I.C.C. Power Cables Division, Telephone Number Change.—From February 8, the telephone number of the Erith Works of the Power Cables Division of British Insulated Callender's Cables Limited will be changed from Erith 3030 to Erith 33030.

MORE L.M.R. STATIONS TO REMAIN OPEN.—As a result of further investigation British Railways, London Midland Region, has announced that certain other stations, which it had been decided to close, are to remain open for various traffics. They were among some 90 others which were under consideration for closing in May, 1959, but it has been decided not to submit proposals to the Transport Users' Consultative Committees concerned, because a loss of revenue would be entailed or because the savings would not be great enough to warrant closure. The stations, the lines on which they are situated, and the traffics (passenger PS, parcels PL, and goods G) for which they are to be retained are: Abbey Town (Carlisle-Silloth) (G); Adlington (Stockport-Macclesfield) (PS, PL); Blaby (Nuneaton-Leicester) (PS, PL); Clayton Bridge (Manchester-Stalybridge) (PS, PL); Elmesthorpe (Nuneaton - Leicester) (PS, PL, G); Grettton (Kettering-Nottingham) (G); Hawkesbury Lane (Nuneaton-Coventry) (G); Peak Forest (Derby-Manchester) (PS, PL, G); Roade (Euston-Crewe) (PS, PL, G); Sandycroft (Chester-Holyhead) (PS, PL, G); and Wigston Magna (St. Pancras-Leicester) (PS, PL).

MORE CAR PARKS FOR L.T.E. UNDERGROUND STATIONS.—London Transport Executive is to construct or enlarge ten more car parks at Underground stations in the suburbs. The second largest L.T.E. car park at Morden, the southern terminus of the Northern Line, is to be increased in capacity from 286 to 411, and a new park at Amersham station, on the Metropolitan Line, is to hold 100 cars. Other new parks will be at Chalfont and Pinner stations, on the Metropolitan Line, for 65 and 30 cars, respectively, and at Neasden, on the Bakerloo Line, for 70 cars. Parks are to be enlarged at Loughton, Central Line, from 40 to 70 cars; at Moor Park, Metropolitan Line, from 65 to 110; and also at Perivale, Sudbury Town, and Wendover. The additional space will accommodate 500 cars, bringing the total capacity of Underground station parks up to 3,300 at 50 stations, almost a three-fold increase since 1955. Work will be begun as soon as possible, and it is hoped that all new space will be in use within 18 months. The object is to encourage motorists to drive in at L.T.E. stations and complete their journeys by Underground.

Contracts and Tenders

Electric coaching stock for the South African Railways

South African Railways has placed an order to the value of £9,707,442 with the Union Carriage & Wagon Co. (South Africa) Ltd. of Nigel, Transvaal, for 113 electric motor coaches, 60 driving trailers, 276 plain trailer coaches, and spare parts. The new electric coaching stock is urgently required, not only to meet expanding suburban and inter-urban passenger demands, but also to provide for increasing passenger requirements from non-White areas.

The Crown Agents have placed a contract with the Gloucester Railway Carriage & Wagon Co. Ltd. for the following rolling stock for the Sierra Leone Government Railway:—

- 12 bogie open third class coaches
- 2 bogie open second class coaches
- 2 bogie open first class coaches
- 2 bogie baggage and brake vans
- All-steel construction, 2 ft. 6 in. gauge.

The London Midland Region of British Railways has placed an order with the Atlas Engineering Company for one Atlas wheel profiling machine for installation at Cricklewood.

The London Transport Executive has placed a contract with L. & W. Whitehead Limited for the reconstruction of buildings at Mansion House Station, District and Circle Lines. The accommodation to be rebuilt includes the booking office, a buffet, and certain staff rooms. The contract is valued at approximately £72,000 and the work will take 18 months to complete. The present main entrance to the station on the corner of Queen Victoria Street is to be demolished in connection with a City of London road widening scheme and a permanent entrance will be built on the new building line when the road works are completed. In the meantime, a temporary entrance from Queen Victoria Street will be used.

British Railways, London Midland Region, has placed the following contracts:

Industrial Engineering Limited: reconstruction of shed roof at Motive Power Depot, Burton-on-Trent

Leonard Fairclough Limited: provision of timber ladders and platform at Pump House, Shore Road, Birkenhead

Mellows & Co. Ltd.: patent glazing of new platform awnings at London Road Station, Manchester

Thomas Fletcher & Co. Ltd.: reconstruction and strengthening of bridges Nos. 78, 91, 118, and 213, over Grand Union Canal on London Euston and Rugby Midland line

Butterley Co. Ltd.: supply fabrication and delivery of steelwork for bridge No. 5, on Macclesfield & Colwich line

Norwest Construction Co. Ltd.: construction for the Ministry of Transport of a bridge, near Holmes Chapel, carrying the Crewe-Stockport line over the Birmingham-Preston motorway

C. A. Horton Limited: construction for the Ministry of Transport of a new bridge No. 5138 at North Ashton carrying the Lancashire Union Line over the Birmingham-Preston motorway.

The Export Services Branch, Board of Trade, has received calls for tenders as follow:—

From Sudan:

- 1 hydraulic spring buckling press

suitable for locomotive and rolling stock laminated springs.

The issuing authority is the Stores Department, Sudan Railways. The tender No. is 2103. The closing date is March 9, 1960. The Board of Trade reference is ESB/779/60.

10 items of electrical fittings for Shendi Station.

The issuing authority is the Stores Department, Sudan Railways. The tender No. is 2101. The closing date is March 7, 1960. Prices should be quoted on both f.o.b. and c.i.f. Port Sudan basis and tenders must be valid for one month and a half from the closing date. The Board of Trade reference is ESB/778/60.

- 3 riveting hammers
- 3 chipping hammers
- 2 hand grinding machines
- 2 reversible power vane drills.

The issuing authority is the Stores Department, Sudan Railways. The tender No. is 2104. The closing date is March 10, 1960. The Board of Trade reference is ESB/654/60.

From Formosa:

1 silicon rectifier set, 3,500 kW. 350 V. 10,000 A. complete with transformers and switching equipment

1 silicon rectifier set, 3,800 kW. 380 V. 10,000 A. complete with transformers and switching equipment.

The issuing authority is the Central Trust of China, Purchasing Department, 68 Yen Ping Nan Lu, Taipei, Taiwan. The tender No. is GF-6121F. The closing date is February 20, 1960. The Board of Trade reference is ESB/922/60.

700 rough rolled-steel wheel tyres.

The issuing authority and address to which bids should be sent is the Central Trust of China, Purchasing Department, 68, Yen Ping Nan Lu, Taipei, Taiwan. The closing date is February 2, 1960. The tender No. is GFA-6670-B. Local representation is desirable. The Board of Trade reference is ESB/1008/60.

Further details relating to the above tenders together with photo-copies of tender documents can be obtained from the Branch (Laccon House, Theobald's Road, W.C.1).

FIFTH STAGE OF L.T.E. TROLLEYBUS CONVERSION.—London Transport Executive has announced that five trolleybus routes in east and north-east London will be replaced by Routemaster diesel buses when Stage V of the £10,000,000 trolleybus conversion scheme comes into effect on February 3. The trolleybus services concerned are routes 557 (9.1 route miles), 669 (5.7 miles), 685 (14.3 miles), 689 (6.1 miles) and 690 (6.1 miles), serving the Chingford, Walthamstow, Leyton, Hackney, Shoreditch, Liverpool Street, Stratford, Canning Town, Silvertown, North Woolwich, Plaistow, Upton Park and East Ham areas. The trolleybuses being displaced are operated from West Ham and Walthamstow Depots. Both depots are undergoing conversion to make them suitable for diesel buses. At Walthamstow Depot the equipment is to include an automatic washing installation of the new L.T.E. standard type, described in our issue of December 4, 1959.

Notes and News

Congestion at Level Crossing on Tilbury Line.

—A level crossing adjoining the British Bata Shoe Co. Ltd. factory at East Tilbury, on the London Tilbury & Southend Line of the Eastern Region, is reported to have delayed the journey to work of over 1,300 factory employees. There is only one-way traffic for road vehicles. Some four-fifths of the factory staff of 3,000 are stated to have to cross the line daily.

The Institution of Electrical Engineers' Summer Meeting.

—The summer meeting of the Institution of Electrical Engineers will be held in Scotland from Monday, June 27, to Friday, July 1, with headquarters at the Central Hotel, Glasgow. The programme will provide many interesting visits and social events, and those wishing to take part in the meeting should get in touch with the Secretary, Mr. W. K. Brasher.

Presentation of First-aid Awards to L.M.R. Staff.

—Mr. David Blee, General Manager, British Railways, London Midland Region, recently presented at Euston Station awards to six members of the staff of the Region who had rendered first aid to the injured. Foreman's Assistant, H. R. Pantin and Driver A. White, both of Cricklewood Motive Power Depot, successfully applied treatment to a shunter knocked down by a wagon. Foreman D. Fisher, of Crewe Motive Power Depot, and Constable M. W. Johnston, of the Police Department, Heysham, applied artificial respiration and treated the burns of a driver who had come into contact with 6,600-V. overhead lines on the electrified railway at Lancaster, saving his life. Assistant Yardmaster G. Cox and Mr. J. R. Corns, of the Operating Department, Birkenhead, were instrumental in saving, by prompt treatment, the life of a shunter knocked down by a diesel locomotive. The illustration shows Mr. Blee and officers of the Region and B.T.C. Police with the recipients and their wives: standing (left to right): Messrs. W. E. N. Growdon, Chief of Police, Midland Area, B.T.C.; A. B. Macleod, Supplies & Contracts Manager; E. G. Brentnall, Signal Engineer; J. W. Tonge, Internal Relations Officer; Dr. G. E. Graves Peirce, Regional Medical Officer; Mr. David Blee; Messrs. H. Aidley, Regional Establishment & Staff

Officer; J. K. Abson, Estate & Rating Surveyor; E. H. Baker, Motive Power Officer; S. H. Gould, Operating Officer; and A. Healey, Regional Ambulance Secretary.

R. A. Lister & Co. Ltd. Increased Dividend.

—Consolidated group profits of over £100,000 by R. A. Lister & Co. Ltd. have resulted from increased productivity and benefits accruing from capital expenditure during the past two years. The interim dividend is increased to 5 per cent (2½ per cent) and the total dividend for the year is increased to 14 per cent (12½ per cent).

Japan Tourist Association's New Paris Office.

—To deal with the increase of tourist traffic to Japan from European countries, the Japan Tourist Association has opened a new travel promotion office in Paris. Mr. N. Yanai, former Assistant to the Director of Traffic Department, Japanese National Railways, has been appointed the first Manager. The official title of the office is Office Nationale due Tourisme Japonais, temporarily located at: Hotel du Palais, d'orsay 9 Quai, Anatole-France, Paris (7er).

Timber Hauliers Committee.

—Timber hauliers in London have formed a committee under the chairmanship of Mr. A. E. Drain, A. E. Drain Transport Limited, Deptford, Chairman of the Metropolitan & South Eastern Area of the Road Haulage Association. One of the objects of the committee is to establish close liaison with the timber trade so as to iron out many of the difficulties among timber traders and hauliers. Among these difficulties are delays at docks and the classification of loads.

Braking Practice and Developments.

—Improved release times for vacuum brakes were featured in the discussion on railway braking at a meeting of the Institution of Locomotive Engineers in London on January 19. The occasion was the reading of the paper by Mr. R. C. S. Low, "Some Aspects of Railway Braking," details of which were recorded in our editorial article last week. In the course of his presentation of the paper Mr. Low stated that, after an application in which the brake cylinder vacuum has been reduced to zero on a two-car set fitted with quick-release brakes, the release time can be as little as 6 sec. This is half the time recorded by us from the

written paper, and an improvement of about 80 per cent on the normal time of release.

B.T.C. Shopping Centre Development at Edgware.

—A frontage of 200 ft. on Station Road, Edgware, is being offered for development by the British Transport Commission as shops with offices or flats above. The site is in a busy shopping area. The Commission hopes to attract applications from large-scale developers or multiple stores. The arrangements are in the hands of the Estate & Rating Surveyor, Euston Station.

Advice on Hygiene to British Railways Ships Catering Staff.

—A booklet has been prepared under the direction of Dr. L. J. Haydon, Regional Medical Officer, British Railways, Southern Region, giving advice on the maintenance of hygiene in railway steamers. It is to be issued to the catering staffs of Southern Region steamers. Advice includes withdrawal of chipped and cracked crockery. Galleys of railway steamers are inspected at regular intervals by medical officers. The catering in the cross-Channel and other Southern Region marine services is reported to have a good record in matters of hygiene.

B.I.M. Conference on Drawing Office Management.

—A one-day conference on drawing office management has been arranged by the British Institute of Management for February 18, in the Recital Room, Royal Festival Hall, London. The speakers will be Mr. K. G. Kendrick, Senior Consultant, Associated Industrial Consultants Limited, on "The Effective Organisation of Drawing Offices"; Mr. G. Wade, Director, Department of Work Study & Staff Training, Engineering & Allied Employers' West of England Association, on "Work Study as an Aid to Drafting and Design"; Mr. F. Halden, President, Drawing Office Material Manufacturers' & Dealers Association, and Director of J. Halden & Co. Ltd., on "Modern Equipment: Its Selection and Use"; Mr. G. H. Doughty, General Secretary, Association of Engineering & Shipbuilding Draughtsmen, on "The Attitudes of the Drawing Office Staff"; and Mr. B. H. Dyson, formerly General Manager for Overseas Production and Director of Hoover Limited, on "The Draughtsman and Product Cost." Further information may be obtained from the British Institute of Management, 80, Fetter Lane, E.C.4, tel. Holborn 3456, ext. 13.



Mr. David Blee and officers of the London Midland Region with recipients of awards for first aid

Change of Address of Import Licensing Branch.—The functions of the Import Licensing Branch have been transferred to the Tariff & Import Policy Division of the Board of Trade, Horse Guards Avenue, London, S.W.1, tel. Trafalgar 8855.

Mobile Exhibition of Floor and Soil Warming Systems.—A travelling exhibition to demonstrate the floor-warming and soil-warming systems supplied by Calidec Limited has been arranged in conjunction with British Railways. A railway coach has been converted for use for two weeks as a demonstration vehicle. The Calidec floor-warming system has been installed at one end and the soil-warming system at the other. The coach was on view at Sheffield Midland Station last Tuesday and Wednesday. Yesterday and today it has been at Leeds City, and the programme thereafter is: Newcastle Central, February 1 and 2; Glasgow St. Enoch, February 3, 4 and 5; and Liverpool Exchange, February 8 and 9. Invitations have been sent out by Calidec Limited to architects, electrical contractors and others likely to be interested. Technical staff are available from 9.30 to 5.30 p.m. in the coach at the stations shown, to demonstrate the systems and answer queries. All visitors are welcome to visit the coach at any station on its itinerary.

Rail Link to Esso Refinery.—In conjunction with the British Transport Commission, work will commence shortly on the construction of a single line private trunk siding, linking the Esso Refinery, Milford Haven, with the Western Region main line at Johnstone, Haverfordwest. This line, 2½ miles long, will be laid by British Railways and will link up with a marshalling yard and distribution system which the Esso Petroleum Co. Ltd. is installing within the refinery. The line will be for goods traffic only, initially carrying material for the construction, maintenance, and operation of the refinery, with some outloading of the product by rail car, but its design allows for extensions to serve any future development of other industries in the area.

Diesel Train Stranded in Snow Drift in the Scottish Region.—The 9.17 a.m. diesel train from Fraserburgh to Aberdeen, British Railways, Scottish Region, was blocked by a snow drift just north of Newmachar Station on January 19. The 57 passengers were



Van adapted for display of Calidec floor and soil warming systems

stranded for 15 hr. Light and heat were provided all the time. A railway district inspector in a Land Rover reached the diesel train by road, and by contacting a bakery was able to bring food to the passengers. A steam relief train took passengers off the diesel at 4 a.m., and, preceded by an engine with snowplough, arrived at Aberdeen at 6.30 a.m.

Public Transport Association Scarborough Conference.—The Public Transport Association is to hold its fifteenth annual conference at Scarborough on May 17-19. The Chairman of the Council, Mr. A. F. R. Carling, will receive members and their guests at 9 p.m. on May 17 at the Grand Hotel, where other functions and meetings will take place. The eighteenth annual general meeting will be at 10.30 a.m. next day, followed by a paper by Mr. R. P. Lovell, Chief Mechanical Engineer, Ministry of Transport. There will be a civic reception and dance in the evening. On May 19 a paper will be read at 10.15 a.m. by Mr. H. Bottomley, General Manager of Ribbles Motor Services Limited. Details may be obtained from the Secretary of the Association, Brettenham House, Lancaster Place, Strand, W.C.2.

James Booth Aluminium Limited Formed.—The Delta Metal Co. Ltd. has formed a new company, James Booth Aluminium Limited, to acquire the whole of the aluminium and light alloy interests of its existing subsidiary James Booth & Co. Ltd. The issued capital will be £10,000,000 of which the Delta Metal Co. Ltd. will contribute £5,000,000 by way of existing assets, and Kaiser Aluminium & Chemical Corporation £5,000,000 additional finance to be used for the expansion and re-equipment of the works at Kitts Green, Birmingham. As well as Duralumin and other strong alloys, future products will include pure aluminium and soft alloys and there will be facilities for embossing and corrugating.

Courlak Limited Formed to Market Duracour Fabrics.—A subsidiary company, Courlak Limited, was formed on January 1, by Courtaulds Limited to market and develop the range of Duracour fabrics mentioned elsewhere in this issue and suitable for vehicle upholstery and decorative uses. The Chairman is Mr. D. R. B. Mynors and the Managing Director is Mr. E. W. F. Gilboy. Other directors are: Mr. F. C. Kimmerling (technical development), Dr. T. H. Morton, and Mr. R. A. McFarlane. Sales to the transport industry are the responsibility of Mr. D. Thompson. The present office is at Cheapside House, Cheapside, London, E.C.2, and at the end of March it will move to 143, New Bond Street, W.1.

Passenger Falls Between Two Coaches of a Moving Train.—The Western Region of British Railways is to investigate a passenger's complaint about the treatment he received after being dragged along between two coaches of a London-Bristol train on January 22. The passenger reported that while on his way to the restaurant car from the last carriage he fell through a gap in the gangway connecting the coach with the one in front. He was caught beneath the armpits and managed to haul himself back on the gangway after being dragged for a few miles. The passenger complained that the railway authorities showed a complete lack of concern about the matter.

New Anglo-Hungarian Trade Arrangement.—Negotiations in London between representatives of the United Kingdom Government and the Government of Hungary have resulted in the signing of a new trade arrangement. This provides a basis for trade for the three-year period beginning January 27, 1960. Import quotas on both sides will be negotiated annually. Import quotas for



Fraserburgh-Aberdeen multiple-unit diesel train stranded in snow drift, with relief steam train in background

the 12 months from January 27, 1960, have also been agreed. These allow for Hungarian imports of United Kingdom goods amounting to nearly £5,500,000 and including machinery, textile manufactures, motor vehicles, radio, television and telecommunications equipment, chemicals, and so on. During the same period the United Kingdom Government will issue licences for the import of Hungarian goods to a value of about £4,500,000.

British Railways Thanked for Moving Christmas Mails.—In a letter to Sir Brian Robertson, Chairman of the British Transport Commission, thanking British Railways for their share in helping with the "mountainous task" of delivering the 1959 Christmas mail, the Postmaster General, Mr. Reginald Bevins, writes:—"I felt I would like to write you this note to express my thanks for the railways' share in the good work. Nobody knows better than we do the effort called for on the part of the railways to cope with our demands each Christmas, and they certainly seem to have coped most manfully on this occasion." Sir Brian Robertson has replied to Mr. Bevins, expressing appreciation for the note on behalf of Britain's 500,000 railway staff.

Railway Queen at Darlington.—On January 21, Miss Hazel Dobinson, this year's Railway Queen, named the first diesel-electric locomotive built at Darlington Works, North Eastern Region, British Railways. This locomotive is illustrated and briefly described elsewhere in this issue. The ceremony was witnessed by a very large and enthusiastic number of the Works' employees. Speeches were made by the Railway Queen, Mr. J. S. Scott, Works Manager, Mr. K. A. Kindon, Area Traffic Manager, and Mr. Joe Corrie, a boilermaker, who thanked the Railway Queen on behalf of the staff. A young apprentice presented her with a bouquet. She also received a travel alarm clock from the N.U.R. and a jewel box containing the ribbon broken by the locomotive as it passed out of the Works into service.

Continental Travel Display at Liverpool Street.—British Railways, Eastern Region, has arranged a display in a showcase on No. 9 platform at Liverpool Street Station. The theme is "Springtime on the Continent," with travel to the Continent via Harwich. Reference is made in wording, mostly painted

on Perspex panels, to the Rotterdam Flower Show, which opens on March 25 and to tours of the Dutch tulip fields. The advantages are pointed out of train and boat travel for a brief business trip with overnight travel which involves no hotel expenses. One panel depicts architecture on the Continent, and there is a cut-out in cartoon style of a railway carriage. The display was designed and produced by Barbara Brook Displays Limited to the requirements of the Public Relations & Publicity Officer, Eastern Region.

Collision Between Goods and Express Trains in the L.M. Region.—A Glasgow to London express train was in collision with a goods train about half a mile north of Settle Station in the London Midland Region of British Railways on January 21. Five passengers were killed and nine others injured. While the two trains were passing the locomotive of the goods train became derailed, taking with it eight wagons. The theory being investigated is that a coupling rod of the express locomotive broke away and fouled the goods train. The side of the first coach of the express, a parcels van, was ripped out, a portion of the side of the third coach was torn away, and five passenger compartments wrecked. It was in these that the casualties occurred. The three sleeping coaches escaped serious damage.

Furnishings and Plastics for Transport Exhibited.—The exhibition, "Courtaulds in Transport," held on January 21-27 at Celanese House, Hanover Square, London, W.1, and mentioned in our December 18, 1959, issue, showed the products of nine companies in the Courtaulds Group, including man-made fibres, fabrics, plastics, chemicals, metal containers, and paints. Many hundreds of different items manufactured from these products were shown, divided broadly into four display sections dealing with road, rail, sea, and air transport. One of the most prominent exhibits was a completely equipped full-scale section of a British Railways second class open coach with seats upholstered in Duracour material described elsewhere in this issue, and also demonstrating its use for covering suitcases. An adjoining exhibit was a railway hotel dining room showing the use of Courtauld Group products for curtains, carpeting, chair upholstery, table linen, and plastic service trays.

Massey-Ferguson Limited High Sales.—Massey-Ferguson Limited of Toronto, has reported a net income of \$21,018,393 (including tax credits of \$7,200,000) for the year 1959. Profit before income tax was \$27,164,144. The consolidated world-wide sales of \$491,947,763 were the highest in the company's history. The net income per common share was \$1.65 per share on the 12,075,911 common shares outstanding at October 31, 1959. Net income before tax credits was \$1.05 per share. The purchase during 1959 of F. Perkins Limited and the acquisition of tractor assets in the United Kingdom and in France, are the most far-reaching steps undertaken by the company to integrate and strengthen its world-wide manufacturing operations. These acquisitions complete the major part of the company's current programme to control and manufacture more of its own products.

Inquiry into Machine Tool Production.—The Parliamentary Secretary to the Board of Trade, Mr. J. C. Rodgers, announced in the House of Commons on Tuesday that the terms of reference of the sub-committee to examine methods of machine tool production would be "to consider the report by Professor Melman prepared for European Productivity Agency Project No. 420, and to report to the Machine Tool Advisory Council what action can usefully be taken by the United Kingdom machine tool industry on his recommendations." The Chairman is Sir Steuart Mitchell, Controller of Guided Weapons & Electronics at the Ministry of Aviation. The other members are, Mr. R. W. Asquith, of the Asquith Machine Tool Corp. Ltd.; Mr. W. J. Carron, Amalgamated Engineering Union; Colonel C. W. Clark, Alfred Herbert Limited; Mr. R. C. Giggins, General Electric Co. Ltd.; Mr. J. G. Lloyd, Vickers-Armstrongs (Engineers) Limited; Mr. R. D. G. Ryder, Thomas Ryder & Son Ltd.; Mr. A. Siddall, Joseph Lucas (Electrical) Co. Ltd.; and three officials of the Board of Trade, Mr. E. T. Grainger, Mr. J. B. L. Munro, and Mr. K. D. Rogers (secretary).

Forthcoming Meetings

February 1 (Mon.)—Institute of Traffic Administration, Kent & South East Centre, at the Wig & Gown Hotel, Maidstone, at 7.30 p.m. Paper on "Fire and transport," by Lt.-Commander J. Fordham, Chief Officer, Kent Fire Brigade.

February 1 (Mon.)—Institute of Transport, Metropolitan Section, at 80 Portland Place, London, W.1, at 6 p.m. Paper on "The changing scene in transport since 1947," by Sir John Benstead.

February 1 (Mon.)—Railway Correspondence & Travel Society, Northampton Branch, at the Liberal Club, Castilian Street, Northampton, at 7.30 p.m. Paper on "Wolverton past and present," by Mr. R. Frisby.

February 1 (Mon.)—Institute of Transport, Darlington Group, at United House, Grange Road, Darlington, at 7 p.m. Paper on "Civil engineering on British Railways," by Mr. F. Everitt, District Engineer, British Railways, North Eastern Region.

February 1 (Mon.)—Institute of Transport, Midland Section, at the Engineering Centre, Birmingham, at 6.30 p.m. Paper on "Newport docks—organisation and operations," by Mr. F. C. Coleman, Dock Manager (Newport), British Transport Commission.

February 2 (Tue.)—Institute of Transport, at the Connaught Rooms, Great Queen



Part of the display on No. 9 platform at Liverpool Street, featuring travel to the Continent via Harwich

Street, W.C.2, at 12.15 for 1 p.m. Informal luncheon. Speaker: Mr. R. M. Geddes, Managing Director, Dunlop Rubber Co. Ltd.

February 2 (Tue.).—Railway Correspondence & Travel Society, Lincs., North West Section, at Preston Station, at 7.15 p.m. Paper on "British Railways modernisation," by Mr. B. R. Preston, Assistant Operating Superintendent.

February 2 (Tue.).—Institute of Transport North Western Section, at the Gas Service Centre, Manchester, at 6.15 p.m. Paper on "The movement of freight traffic," by Mr. J. Royston.

February 3 (Wed.).—Peterborough Railway Discussion Group, at Peterborough Technical College, Eastfield Road, at 6.45 p.m. Paper on "Preserving railway relics," by Mr. J. H. Scholes, Curator of Historical Relics, British Transport Commission, Clapham.

February 4 (Thu.).—Institute of Transport, Merseyside Section, at the Chamber of Commerce, Liverpool. Paper on "Inter-city helicopter transports," by Wing-Commander R. A. C. Brier, Westland Aircraft Limited.

February 4 (Thu.).—British Railways, Western Region, London Lecture & Debating Society, in the Headquarters Staff Dining Club, Bishop's Bridge Road, Paddington, W.2, at 5.45 p.m. Paper on "Modernisation progress and developments in the Civil Engineering Department," illustrated, by Mr. M. G. R. Smith, Chief Civil Engineer, Western Region, British Railways.

February 5 (Fri.).—The Railway Club, at the Royal Scottish Corporation, Fetter Lane, E.C.4, at 7 p.m. Annual general meeting (members only) followed by a display of members' colour transparencies on railway subjects.

February 5 (Fri.).—Railway Correspondence & Travel Society, London Branch, at the Railway Clearing House, Eversholt Street, N.W.1, at 7.15 p.m. Film show "Some highlights of post-war years," by Mr. W. A. Camwell.

February 8 (Mon.).—Institute of Traffic Administration, Birmingham Centre, at the Cosmopolitan Club, Fore Street, Birmingham, at 7.15 p.m. Talk on diesel engine maintenance.

February 8 (Mon.).—Institute of Transport, at the Jarvis Hall (R.I.B.A.), 66, Portland Place, W.1, at 5.45 p.m. Branner Memorial Lecture "R.A.F. Transport Command," by Air Chief Marshal Sir Denis H. F. Barnett.

February 10 (Wed.).—The Railway Enthusiast's Club, at 273, Farnborough Road, Farnborough, Hants., at 8 p.m. Paper on "How the modernisation plan is affecting the Western Region," by Mr. E. C. Cookson, Assistant Civil Engineer, Western Region, British Railways.

February 10 (Wed.).—Peterborough Railway Discussion Group, at Peterborough Technical College, Eastfield Road, at 6.45 p.m. Paper on "Functions and duties of a Public Relations Officer of the B.T.C.," by Mr. T. A. Germaine, Public Relations Assistant, Liverpool Street, Eastern Region, British Railways.

February 10 (Wed.).—British Railways, Southern Region, Lecture & Debating Society, at the Chapter House, St. Thomas Street, S.E.1, at 6 p.m. Paper on "The story of The Railway Gazette," by Mr. B. W. C. Cooke, the Editor.

February 10 (Wed.).—Railway Correspondence & Travel Society, Lincs & North West Section, at the Douglas Hotel, Fennel Street, Manchester, at 7.15 p.m.

Paper on "The North Staffordshire Railway," by Dr. J. R. Hollick.

February 11 (Thu.).—Railway Correspondence & Travel Society, Bristol & District Branch, at the Grosvenor Hotel, Bristol, 1, at 7.15 p.m. B.T.C. films.

February 11 (Thu.).—British Railways, London Midland Region, Lecture & Debating Society, in the Clerical Staff Dining Club, Cardington Street, Euston, N.W.1, at 5.45 p.m. Paper on "Air transport," by Mr. P. G. Masefield.

February 12 (Fri.).—The Institute of Transport, East Midlands Section, at the University, Leicester, at 6.30 p.m. Paper on "The subsidising of public transport," by Professor A. G. Pool, Head of the Department of Economics, Leicester University.

February 13 (Sat.).—Railway Correspondence & Travel Society, South of England Branch, at "The Good Companions," Leigh Road, Eastleigh, at 6 p.m. Annual re-union dinner.

February 15 (Mon.).—Institute of Traffic Administration, East Midland Centre, at the Mechanics Institute, Nottingham, at 7.30 p.m. Film display on railway operation.

February 15 (Mon.).—The Historical Model Railway Society, at Caxton Hall, Westminster, S.W.1, at 7 p.m. "The South Eastern & Chatham Railway"—a display of photographs from the collection of Mr. N. Wakeman, presented by Mr. L. Ward.

OFFICIAL NOTICES

RHODESIA RAILWAYS

VACANCIES FOR ASSISTANT MECHANICAL ENGINEERS

APPlicants should be not less than 25 years of age and should preferably be corporate members of the Institution of Mechanical Engineers. The minimum qualification for acceptance will be a B.Sc.(M) degree or its equivalent or applicant must have passed Parts I and II of the examination of the Institution of Mechanical Engineers.

Previous practical experience preferably on a Railway will be an advantage.

Salary scale for Assistant Mechanical Engineers is from £950 to £1,800 per annum and the commencing salary, subject to a maximum of £1,500 per annum, will depend upon the qualifications and previous experience of the applicant.

A Cost of Living Allowance, at present based on 12% substantive salary and subject to a maximum of £180 per annum, is payable.

Membership of the Contributory Pension Fund and the Medical Fund is obligatory and the usual Railway privileges in respect of travelling concessions, leave, etc., will apply. Details will be given on application.

Housing is provided at a moderate rental to married Engineers but in the event of Railway accommodation not being available, a Married Accommodation Allowance of £72 per annum is payable.

Applications together with full particulars of training, experience, education and technical qualifications, etc., should be forwarded to:—

The Chief Mechanical Engineer, Rhodesia Railways, P.O. Box 703, BULAWAYO, S. Rhodesia.

TECHNICAL/COMMERCIAL REPRESENTATIVE

AN Engineer with railway signalling background is required as Technical/Commercial Representative in an electronic firm forming part of a large group with increasing interest in the field of railway signalling.

The post, a new one, requires someone who is prepared to build up contacts and business based on the Company's own development resources and on the products of the associated members of the group. A background in existing signalling equipment and ability to appreciate new electronic techniques is required.

The position could be of interest either to a young engineer anxious to increase his prospects or a more experienced man wishing to augment a pension and continue active in his profession. The salary will be in the £1,200-£1,500 range.

Please apply in writing to the Personnel Officer, MULLARD EQUIPMENT LIMITED, 51-55 Garratt Lane, Wandsworth, S.W.18, quoting reference T.C./2.

Railway Stock Market

There was no pronounced reaction in stock markets to the increase in the bank rate from 4 per cent to 5 per cent, because in recent weeks there had been a downward trend in share prices because of bank rate fears. This week, a rallying tendency remained in evidence, though buying was selective and centred in the main on shares which show reasonable yields. British Funds also strengthened. In fact, it is widely assumed that the bank rate may be reduced before long, though this may depend on the trend of money rates in foreign centres, notably New York. The City was rather surprised that the chief reason for the bank rate change mentioned by official spokesmen was the need to take precautionary steps to prevent inflation trends. There is no doubt that the industrial position is encouraging with production and investment increasing, but the Chancellor of the Exchequer, Mr. Heathcoat Amory, apparently believes that for a time it is necessary to check the rate of increase in spending on consumer goods.

Movements in foreign rails were again small and without particular significance. Antofagasta ordinary stock, in fact, lost a point at 15, though the preference stock at 30 was fractionally better compared with a week ago. Moreover, the quotation for Costa Rica ordinary stock was marked up a point to 23½; the 6½ per cent first debentures remained at 60.

Paraguay Central prior debentures lost a point at 15½, but in other directions, Mexican Central "A" bearer debentures strengthened from 56½ to 57½. San Paulo Railway 3s. units were again 1s. 6½d.

Guayaquil & Quito assented bonds remained at 80½, and Brazil Rail bonds kept at 8.

Canadian Pacifics at \$47½ were only fractionally lower compared with a week ago. The 4 per cent debentures eased slightly to 66½, and the 4 per cent preference stock remained at 57. White Pass shares kept at \$13½.

Nyasaland Railways shares at 10s. were the same as a week ago, but the 3½ per cent debentures eased from 51½ to 51. West of India Portuguese capital stock at 109½ had the same quotation as a week ago.

Shares of engineering and kindred companies were mostly lower as compared with a week ago, though there has been a tendency to rally. North British Locomotive at 10s. 9d. lost 1s. on balance, and despite the higher dividend, Westinghouse Brake reacted to 55s., which compared with 57s. 6d. a week ago. Moreover, Charles Roberts 5s. shares came back from 19s. 4½d. to 18s. 9d. and Gloucester Wagon 10s. shares eased from 15s. 3d. to 15s. Wagon Repairs 5s. shares were 11s. 3d. compared with 11s. 10½d. a week ago.

Widely held shares were those which have shown the largest declines. Associated Electrical, for instance, were 2s. down on balance at 63s. 3d., while English Electric lost 2s. 3d. at 46s. General Electric came back 9d. at 44s. Crompton Parkinson 5s. shares were 14s. compared with 14s. 6d. Pressed Steel 5s. shares came down from 42s. 9d. to 40s. 10½d., and Dowty Group 10s. shares at 50s. 3d. compared with 51s. 9d. a week ago. Vickers reacted from 37s. 9d. to 35s. 6d., T. W. Ward from 158s. 9d. to 152s. 6d. and Guest Keen from 91s. to 89s. Pollard Bearing 4s. shares were 1s. down at 39s. 9d., while Ransomes & Marles 5s. shares eased from 25s. 3d. to 25s. Lancashire Dynamo came back to 75s. 6d. awaiting the latest turn of events in the rival bids for the company made by Electric & Musical Industries and Metal Industries. Metal Industries were 69s. 9d. Stone-Platt shares eased from 63s. a week ago to 62s. 3d.

